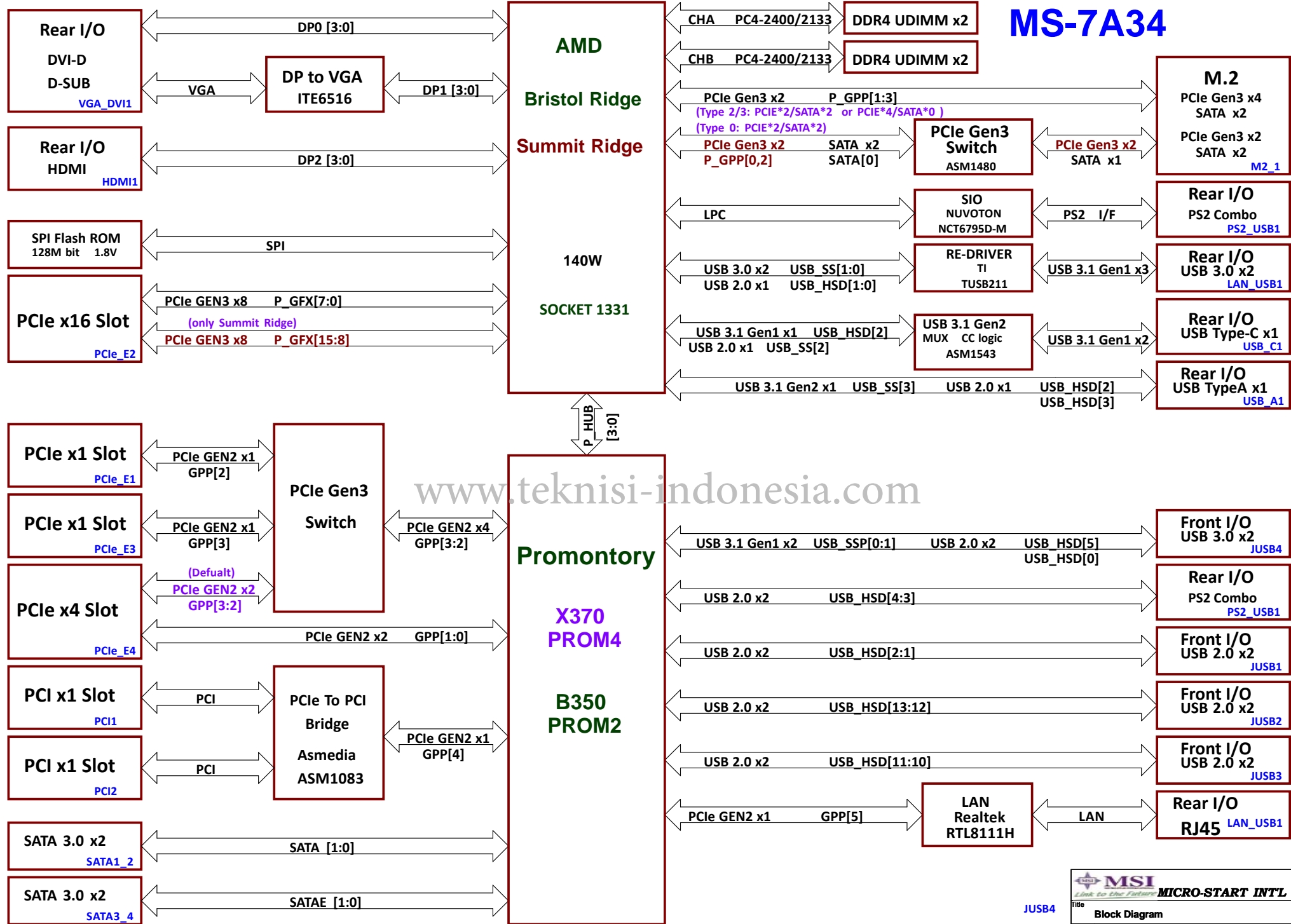
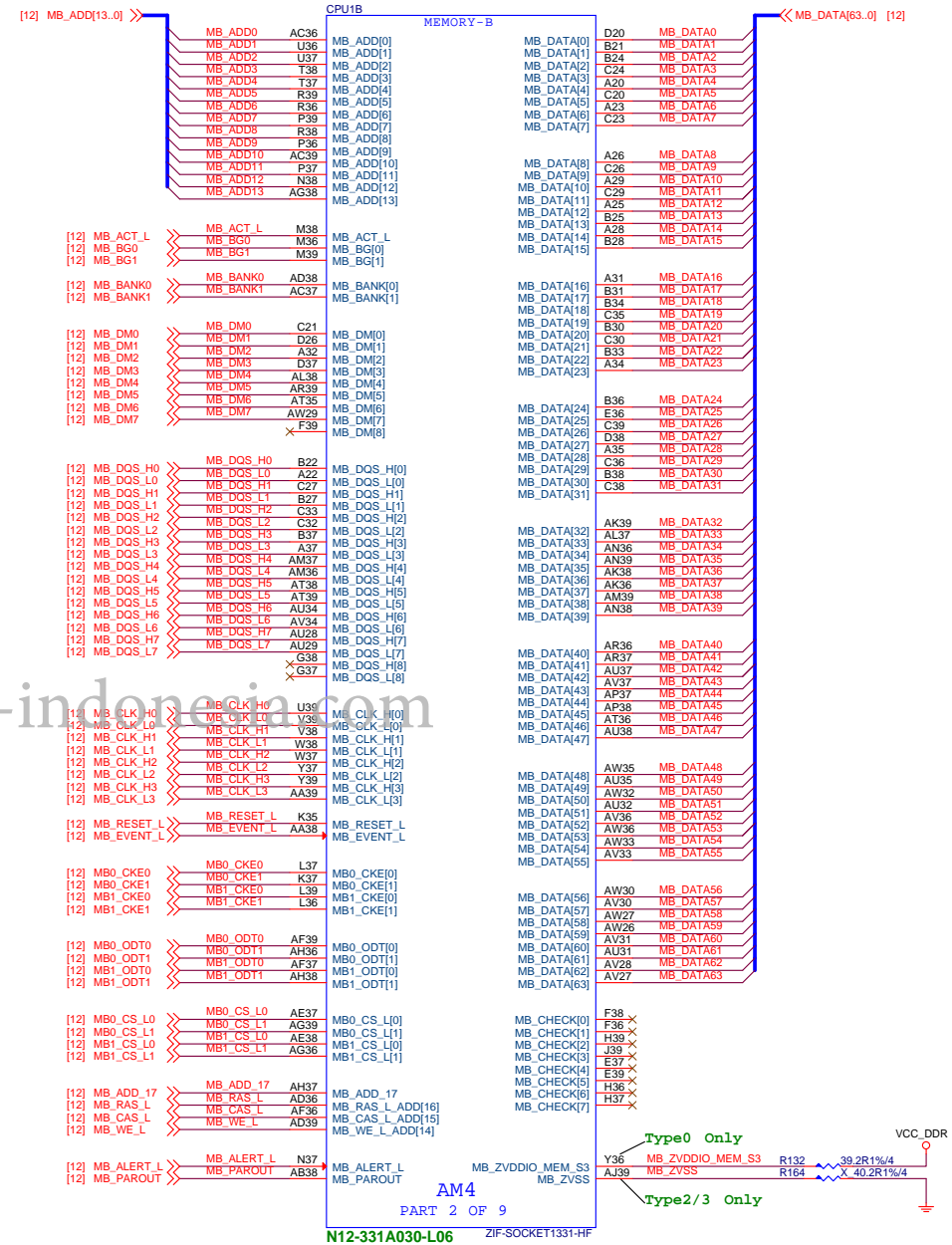
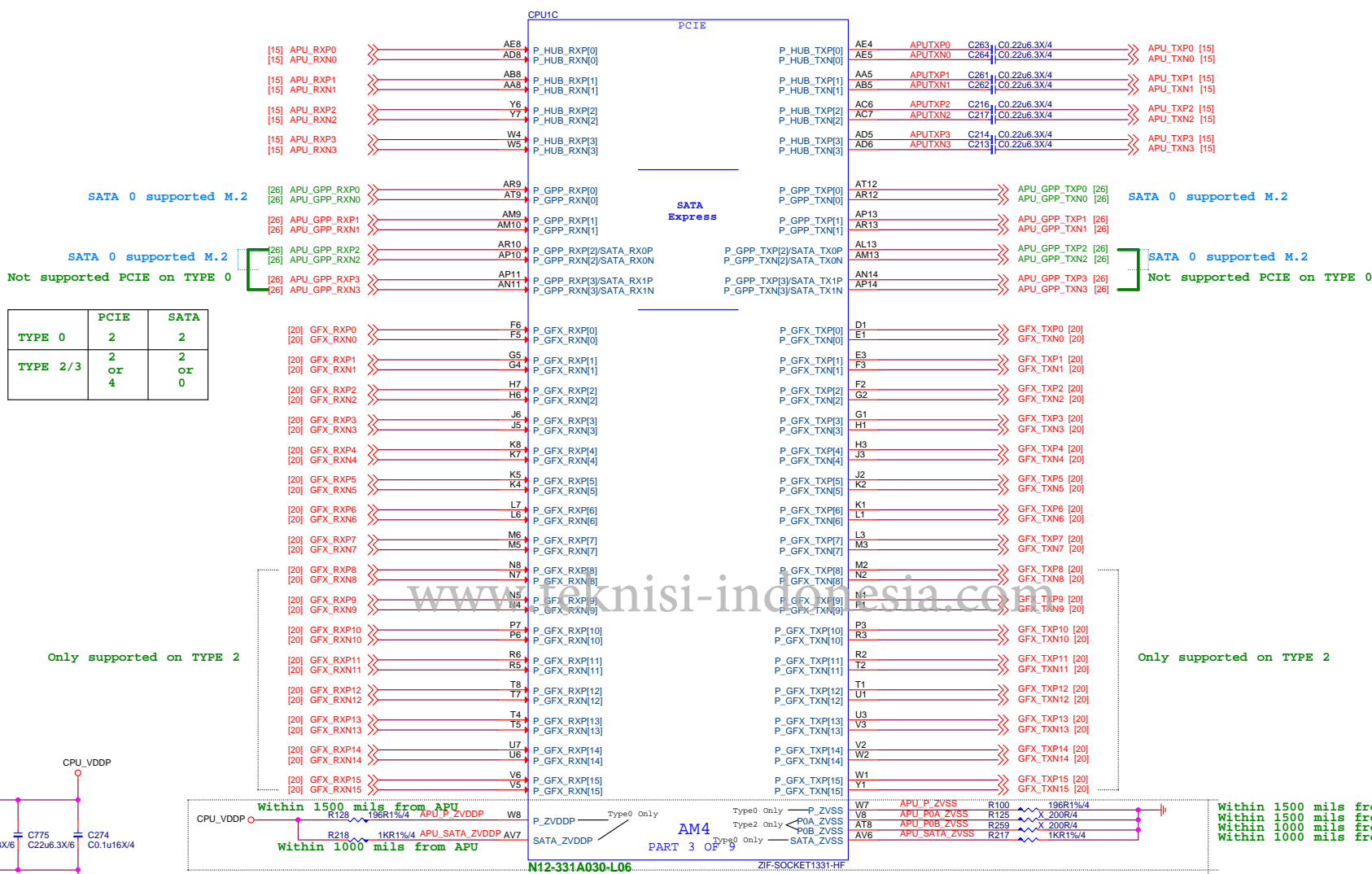


01 Cover Sheet	37 Front USB3.0 90° Header
02 Block Diagram	38 Front USB3.0 180° Header
03 FM4 DDR4 I/F	39 DVI
04 AM4 PCIE/SATAE	40 VGA
05 AM4 Display/Audio	41 HDMI
06 AM4 SVI/ACPI/GPIO	42 5VDIMM/3VSB
07 AM4 LPC/SPI/USB/CLK/STRAP	43 DDR VPP25/VTT
08 AM4 Power/VDDIO_AUDIO Power	44 DDR Power-RT8125E
09,10 RTC/Clear CMOS/RTC Power/GND	45 CPU 1.8_S0/S5
11,12,13,14 DDR4-POWER/GND	46 CPU VDDP-RT8125E
15 Promontory-PCIE/SATA/SATAE	47 CPU RT8894 4+2
16 Promontory-USB/OC	48 CPU Phase1-3
17 Promontory-CLK/ACPI/GPIO	49 CPU Phase4
18 Promontory-Power / 19 Promontory-GND	50 CPU NB
20 PCIE X16	51 CPU NB_S5
21 PCIE X1/PCIE X4	52 Prom-GS7133/2.5V
22 ASM1083 PCI Bri.	53 Prom-NB681/1.05V
23 PCI Slot	54 CPU Connector/PWRGD
24 SIO NCT6795D	55 ATX/Front Panel
25 HWM/COM/Debug LED	56 ALL LED Control
26 M.2	57 LED/OV Control
27,28 FAN 1/FAN 2	58 EMI CAP
29 LAN 8111H	59 BOM Option
30 Audio ALC892	60 Manual Parts
31 Audio De-POP	
32 USB Power	
33 Rear USB	
34 TYPE-A (USB3.1)	
35 Rear USB3.1 TYPE C	
36 Front USB2.0	

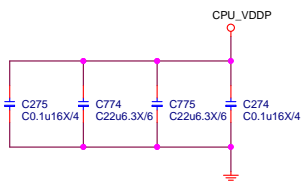
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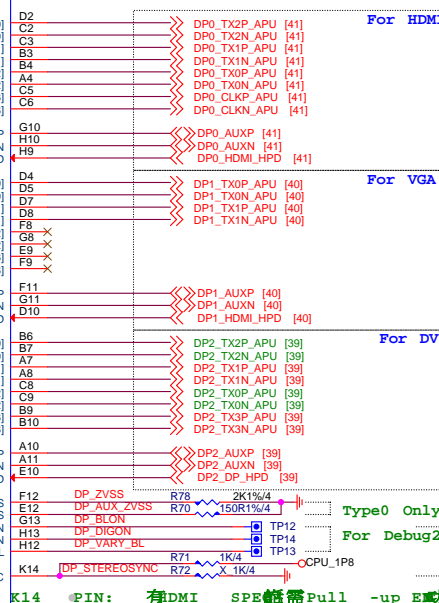
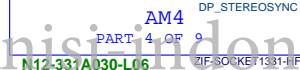
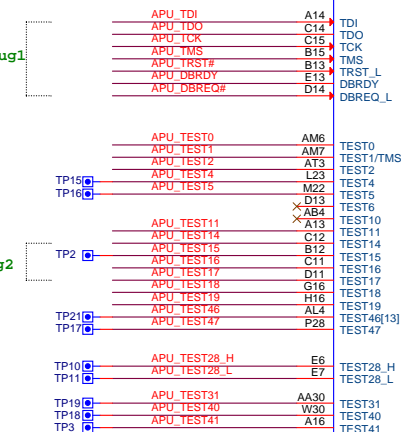




	PCIE	SATA
TYPE 0	2	2
TYPE 2/3	2 or 4	2 or 0



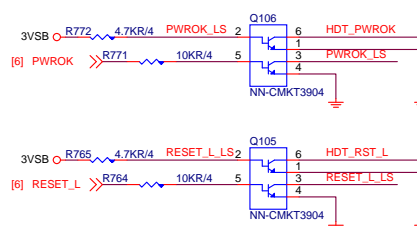
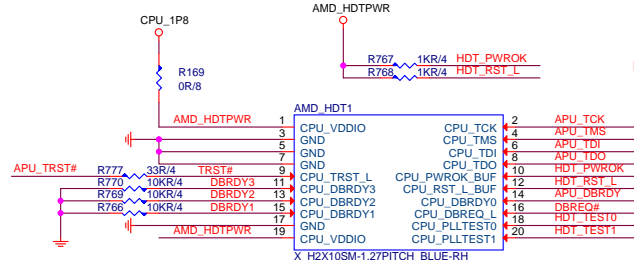
Within 1500 mils from APU  
Within 1500 mils from APU  
Within 1000 mils from APU  
Within 1000 mils from APU



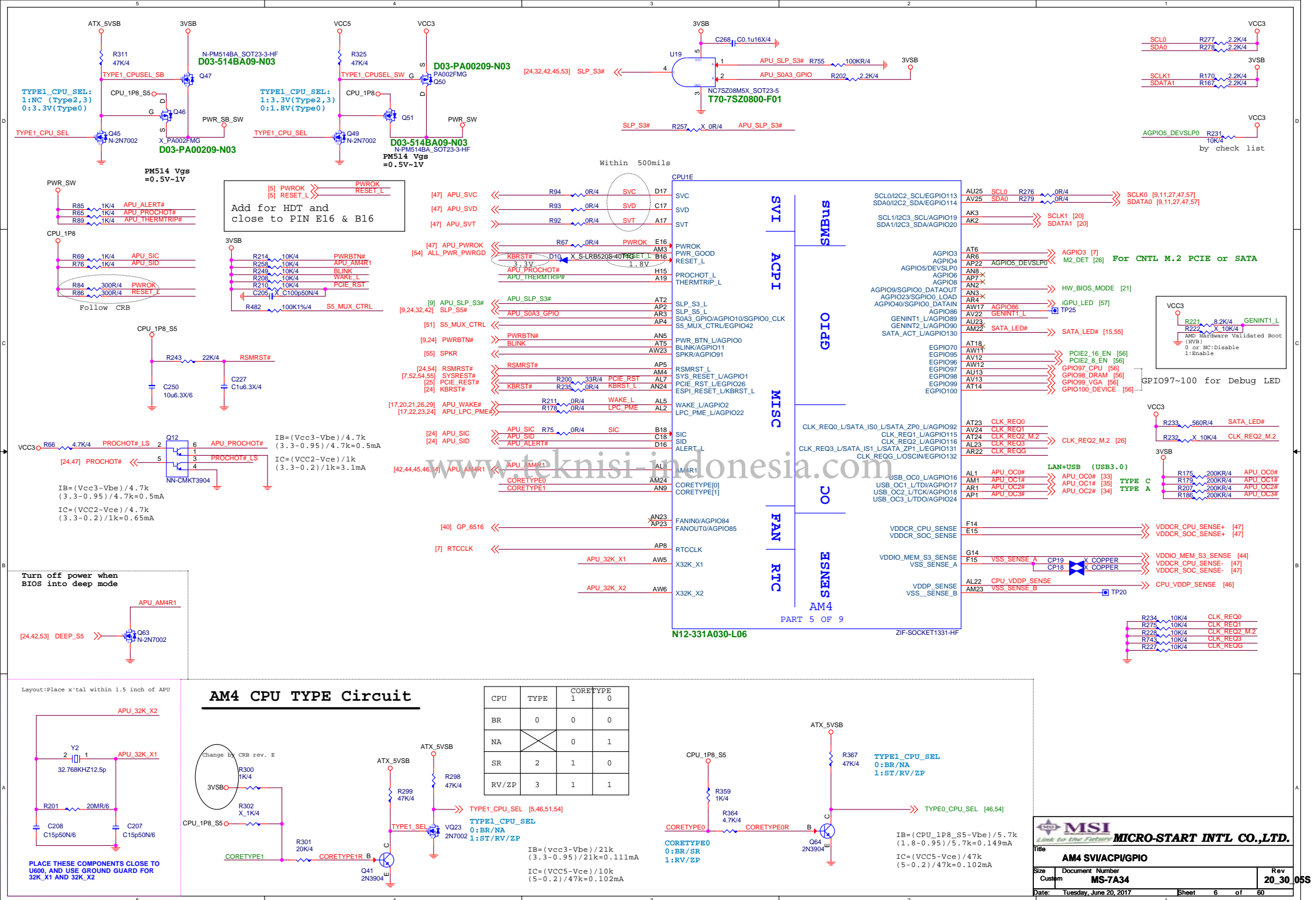
Not supported on TYPE 2

Not support Type2

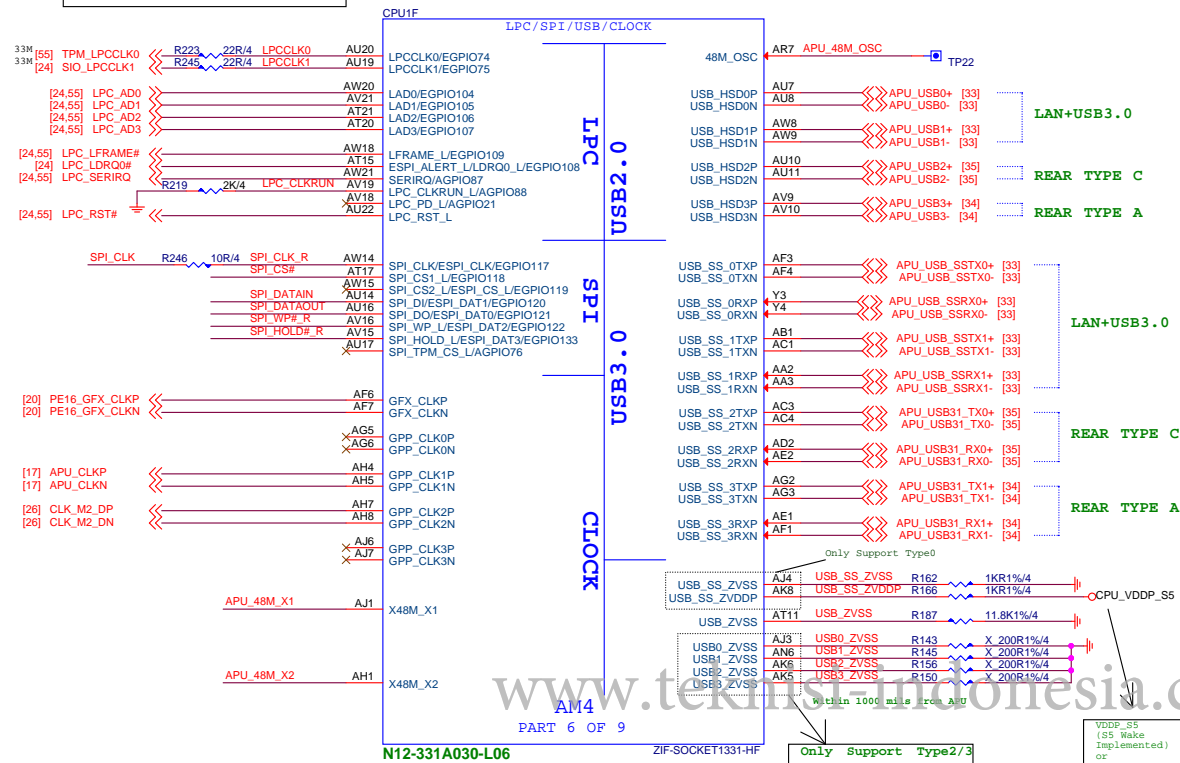
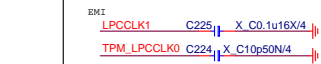
AM4 PART 4 OF 9 K14 PIN: 有DMI SP  
N12-33/A030-L06 ZIF SOCKET 1331-4F



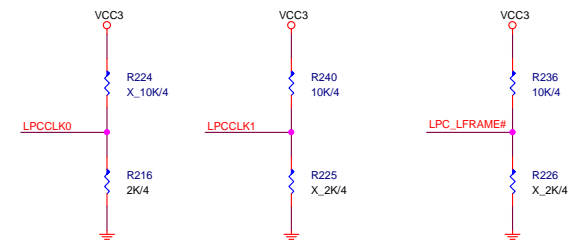
IB=(AMD_HDTPWR-Vbe)/4.7k (1.8-0.95)/4.7k=0.181mA	
IC=(Vc-Vce)/10k (1.8-0.2)/10k=0.16mA	B*Ib>Ic=10*0.181=1.81>0.16
IB=(Vb-Vbe)/10k (1.75-0.95)/10k=0.08mA	
IC=(Vc-Vce)/10k (3.3-0.2)/10k=0.16mA	B*Ib>Ic=10*0.08=0.8>0.16
IB=(AMD_HDTPWR-Vbe)/4.7k (1.8-0.95)/4.7k=0.181mA	
IC=(Vc-Vce)/10k (1.8-0.2)/10k=0.16mA	B*Ib>Ic=10*0.181=1.81>0.16
IB=(Vb-Vbe)/10k (1.75-0.95)/10k=0.08mA	
IC=(Vc-Vce)/10k (3.3-0.2)/10k=0.16mA	B*Ib>Ic=10*0.08=0.8>0.16



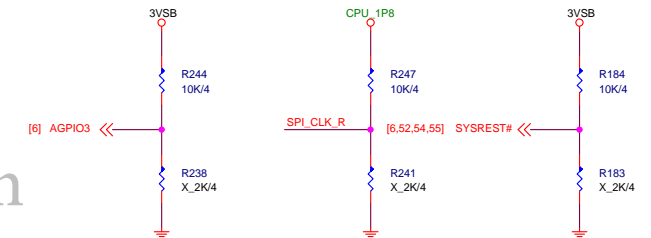




## Strapping Options

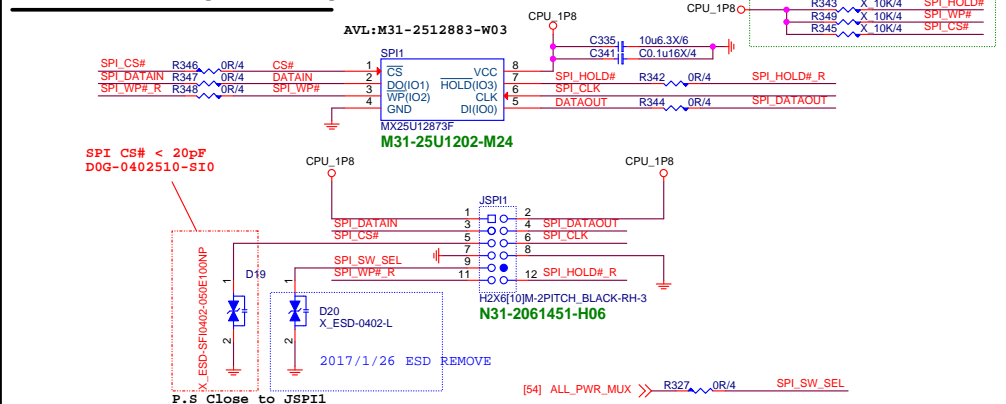


	LPCCLK0	LPCCLK1	SIO_LFRAME
PULL HIGH	LPC device Boot Fail Timer Enabled	Configured for Internal clock generator (Default)	SPI ROM (Default)
PULL LOW	LPC device Boot Fail Timer Disabled (Default)	Configured for External clock generator ?????	LPC ROM (Default)



	AGPIO3	SPI_CLK	SYSREST#
PULL HIGH	Enhanced Reset logic (Default)	Use 48Mhz crystal clock and generate both internal and external clocks (Default)	Normal reset mode (Default)
PULL LOW	Traditional Reset logic	Use 100Mhz PCIE clock as reference clock and generate internal clocks only	short reset mode

## SPI ROM (1.8V)



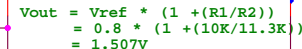
**MSI MICRO-START INTL CO.,LTD.**

Title: **AM4 LPC/SPI/USB/CLK/STRAP**

Size: Custom Document Number: **MS-7A34** Rev: **20\_30\_05S**

Date: Tuesday, June 20, 2017 Sheet: 7 of 60

## 1.5V@0.25A



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ZIF-SOCKET1331-HF

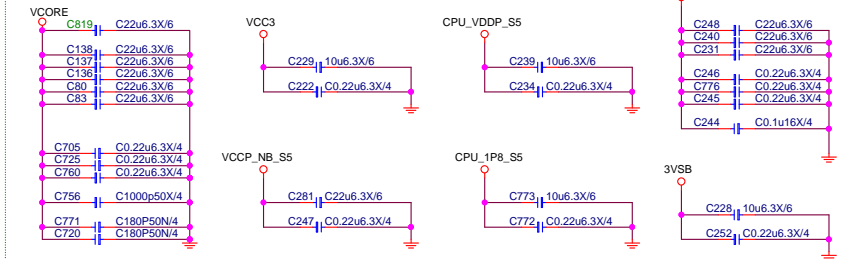
N12-331A030-L06<sup>5</sup>



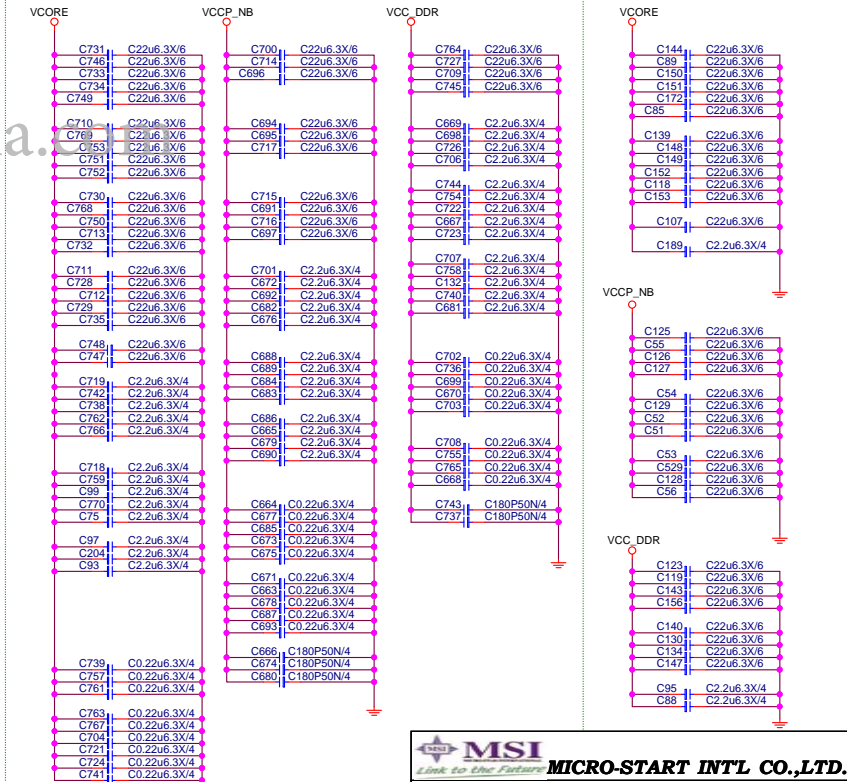
PART 7 OF 9

N12-331A030-L06 ZIF-SOCKET1331-HF

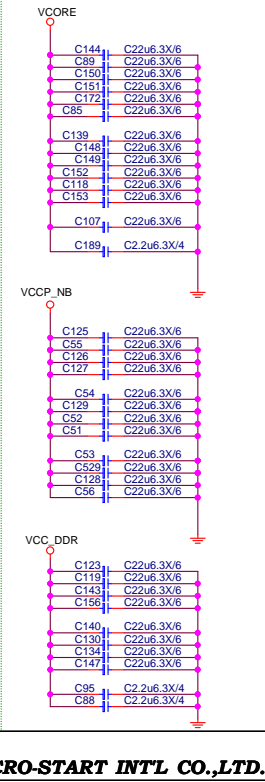
## TOP SIDE



**BOTTOM SIDE**



**TOP CAVITY**



Title	08 AM4 Power/VDDIO_AUDIO Power
-------	--------------------------------

Size	Document Number
Custom	<b>MS-7A34</b>

Date: Tuesday, June 20, 2012

Date:	Tuesday, June 20, 20

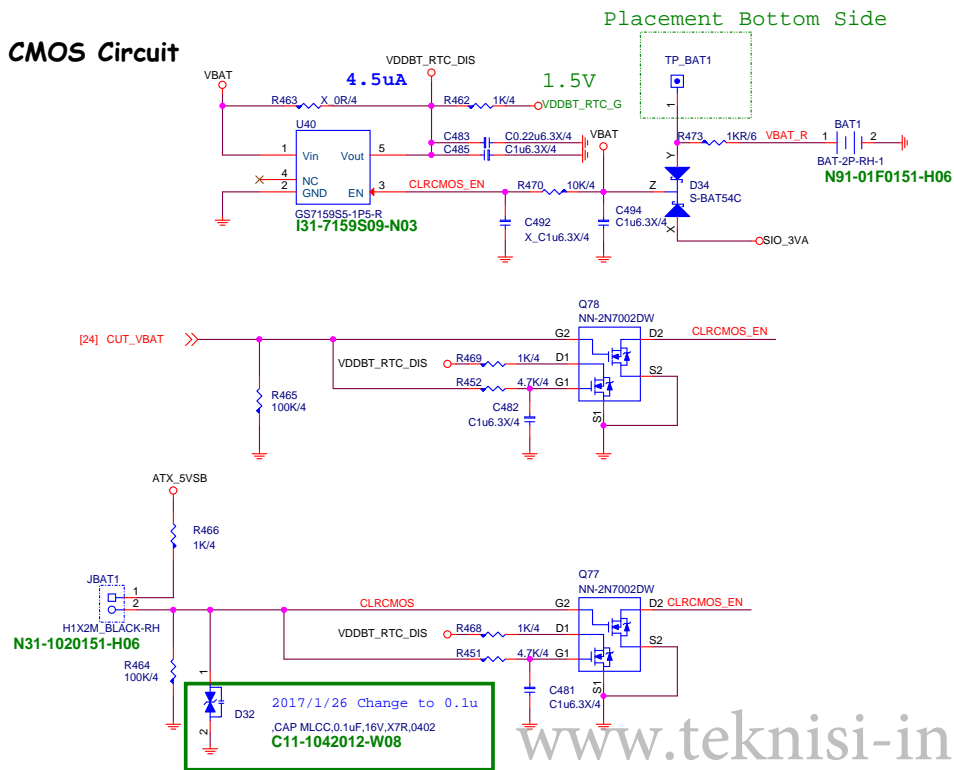
	Rev	
	20 30	05S

Sheet 8 of 60

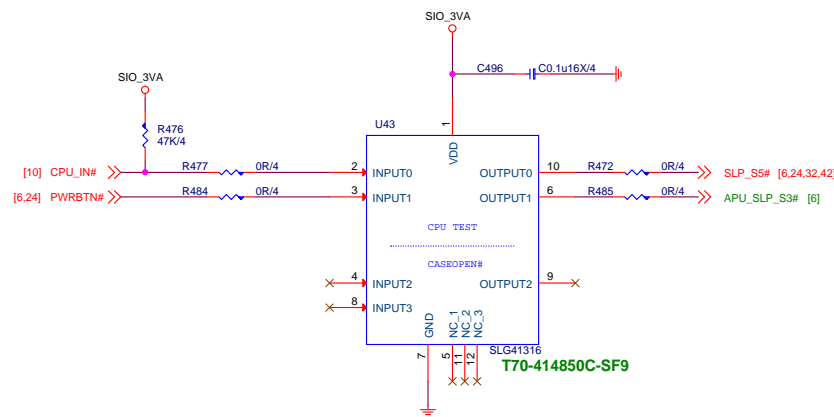
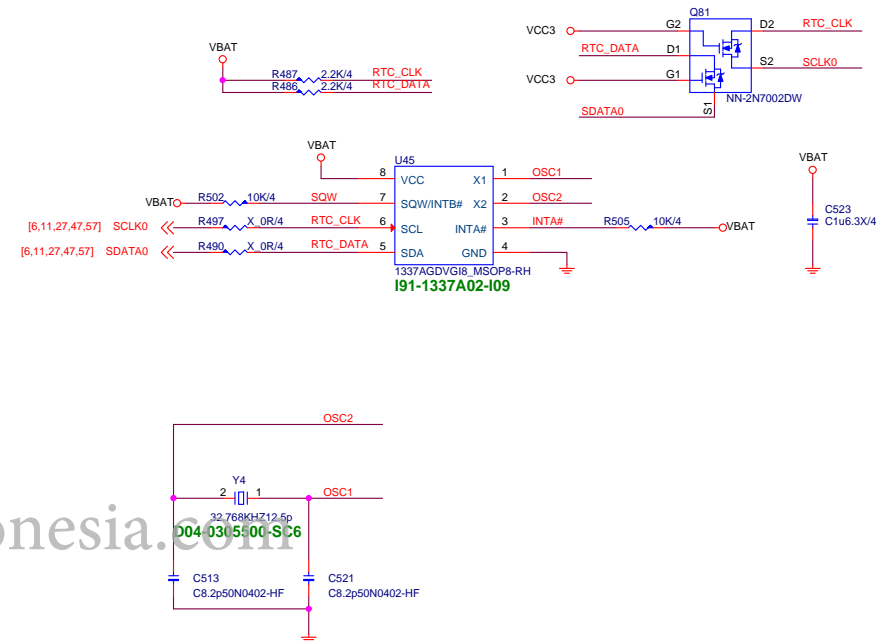
Sheet 0 01 00



## RTC & Clear CMOS Circuit



## For RTC



Function 2				
IN		OUT		
INPUT3 & lowswitch EN	INPUT4	OUTPUT2	OUTPUT3	VOUT
0	0	0	1	1
1	0	1	1	0 (discharge)
0	1	1	0	0 (discharge)
1	1	1	0	0 (discharge)

Default

GND

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AM4  
PART 9 OF 9

A1 A2 B1 B2

DIMMA1A

DQS17P 51  
DQS17N 52  
DQS16P 132  
DQS16N 133  
DQS15P 121  
DQS15N 122  
DQS14P 110  
DQS14N 111  
DQS13P 99  
DQS13N 100  
DQS12P 40  
DQS12N 41  
DQS11P 29  
DQS11N 30  
DQS10P 18  
DQS10N 19  
DQS9P 7  
DQS9N 8  
DQS8P 197  
DQS8N 198  
MA\_DQS\_H7 278  
MA\_DQS\_L7 277  
MA\_DQS\_H6 267  
MA\_DQS\_L6 266  
MA\_DQS\_H5 255  
MA\_DQS\_L5 255  
MA\_DQS\_H4 245  
MA\_DQS\_L4 244  
MA\_DQS\_H3 186  
MA\_DQS\_L3 185  
MA\_DQS\_H2 175  
MA\_DQS\_L2 174  
MA\_DQS\_H1 164  
MA\_DQS\_L1 163  
MA\_DQS\_H0 153  
MA\_DQS\_L0 152  
MA\_CLK\_H1 218  
MA\_CLK\_L1 219  
MA\_CLK\_H0 74  
MA\_CLK\_L0 75  
CK1P  
CK1N  
CK0P  
CK0N

C2 235  
S3\_N\_C1 237  
S2\_N\_C0 93

MA0\_CS\_L1 89  
MA0\_CS\_L0 84  
MA0\_CKE1 203  
MA0\_CKE0 60  
MA0\_ODT1 91  
MA0\_ODT0 87

CB-7 199  
CB-6 54  
CB-5 192  
CB-4 47  
CB-3 201  
CB-2 56  
CB-1 194  
CB-0 49

MA\_RESET\_L 58  
MA\_EVENT\_L 78  
MA\_ALERT\_L 208  
MA\_ACT\_L 62  
MA\_PAROUT 222

SAVE\_N\_NC 230

RFU-0 144  
RFU-1 205  
RFU-2 227

DDRIV-288P\_BLACK-RH-21  
N13-2880581-L06

DQ-63 280  
DQ-62 135  
DQ-61 273  
DQ-60 128  
DQ-59 282  
DQ-58 137  
DQ-57 275  
DQ-56 130  
DQ-55 269  
DQ-54 124  
DQ-53 262  
DQ-52 117  
DQ-51 271  
DQ-50 126  
DQ-49 264  
DQ-48 119  
DQ-47 258  
DQ-46 113  
DQ-45 251  
DQ-44 106  
DQ-43 260  
DQ-42 115  
DQ-41 253  
DQ-40 108  
DQ-39 247  
DQ-38 102  
DQ-37 240  
DQ-36 95  
DQ-35 243  
DQ-34 104  
DQ-33 242  
DQ-32 97  
DQ-31 188  
DQ-30 43  
DQ-29 181  
DQ-28 36  
DQ-27 190  
DQ-26 45  
DQ-25 183  
DQ-24 38  
DQ-23 177  
DQ-22 32  
DQ-21 170  
DQ-20 25  
DQ-19 179  
DQ-18 34  
DQ-17 172  
DQ-16 27  
DQ-15 166  
DQ-14 21  
DQ-13 159  
DQ-12 14  
DQ-11 168  
DQ-10 23  
DQ-9 161  
DQ-8 16  
DQ-7 155  
DQ-6 10  
DQ-5 148  
DQ-4 157  
DQ-3 12  
DQ-2 150  
DQ-1 5

BG-1 207  
BG-0 63  
S1\_N 224  
S0\_N 81

MA\_ADD\_17 234  
MA\_ADD\_16 82  
MA\_ADD\_15 86  
MA\_ADD\_14 228  
MA\_ADD\_13 222  
MA\_ADD\_12 65  
MA\_ADD\_11 210  
MA\_ADD\_10 54  
MA\_ADD\_9 225  
MA\_ADD\_8 66  
MA\_ADD\_7 68  
MA\_ADD\_6 211  
MA\_ADD\_5 69  
MA\_ADD\_4 213  
MA\_ADD\_3 214  
MA\_ADD\_2 71  
MA\_ADD\_1 216  
MA\_ADD\_0 72

MA1\_CS\_L1 224  
MA1\_CS\_L0 81  
MA1\_CKE1 203  
MA1\_CKE0 60  
MA1\_ODT1 91  
MA1\_ODT0 87

MA\_RESET\_L 58  
MA\_EVENT\_L 78  
MA\_ALERT\_L 208  
MA\_ACT\_L 62  
MA\_PAROUT 222

SMB\_CLK\_DIMM 141  
SMB\_DATA\_DIMM 285

SA-2 238  
SA-1 140  
SA-0 139

DIMM1 (CHANNEL-A)-A0  
ADDRESS = 0:0 [SA1:SA0]

MA\_DATA[63..0] [3]

56-63

48-55

40-47

32-39

24-31

16-23

8-15

0-7

SMBus 0	
Device	8-bit Address (hex)
DIMMA0	A0
DIMMB0	A2
DIMMB1	A6

DIMMA2A

DQS17P 51  
DQS17N 52  
DQS16P 132  
DQS16N 133  
DQS15P 121  
DQS15N 122  
DQS14P 110  
DQS14N 111  
DQS13P 99  
DQS13N 100  
DQS12P 40  
DQS12N 41  
DQS11P 29  
DQS11N 30  
DQS10P 18  
DQS10N 19  
DQS9P 7  
DQS9N 8  
DQS8P 197  
DQS8N 198  
MA\_DQS\_H7 278  
MA\_DQS\_L7 277  
MA\_DQS\_H6 267  
MA\_DQS\_L6 266  
MA\_DQS\_H5 255  
MA\_DQS\_L5 255  
MA\_DQS\_H4 245  
MA\_DQS\_L4 244  
MA\_DQS\_H3 186  
MA\_DQS\_L3 185  
MA\_DQS\_H2 175  
MA\_DQS\_L2 174  
MA\_DQS\_H1 164  
MA\_DQS\_L1 163  
MA\_DQS\_H0 153  
MA\_DQS\_L0 152  
MA\_CLK\_H3 218  
MA\_CLK\_L3 219  
MA\_CLK\_H2 74  
MA\_CLK\_L2 75  
CK1P  
CK1N  
CK0P  
CK0N

C2 235  
S3\_N\_C1 237  
S2\_N\_C0 93

MA1\_CS\_L1 89  
MA1\_CS\_L0 84  
MA1\_CKE1 203  
MA1\_CKE0 60  
MA1\_ODT1 91  
MA1\_ODT0 87

CB-7 199  
CB-6 54  
CB-5 192  
CB-4 47  
CB-3 201  
CB-2 56  
CB-1 194  
CB-0 49

MA\_RESET\_L 58  
MA\_EVENT\_L 78  
MA\_ALERT\_L 208  
MA\_ACT\_L 62  
MA\_PAROUT 222

SAVE\_N\_NC 230

RFU-0 144  
RFU-1 205  
RFU-2 227

DDRIV-288P\_BLACK-RH-21  
N13-2880581-L06

DQ-63 280  
DQ-62 135  
DQ-61 273  
DQ-60 128  
DQ-59 282  
DQ-58 137  
DQ-57 275  
DQ-56 130  
DQ-55 269  
DQ-54 124  
DQ-53 262  
DQ-52 117  
DQ-51 271  
DQ-50 126  
DQ-49 264  
DQ-48 119  
DQ-47 258  
DQ-46 113  
DQ-45 251  
DQ-44 106  
DQ-43 260  
DQ-42 115  
DQ-41 253  
DQ-40 108  
DQ-39 247  
DQ-38 102  
DQ-37 240  
DQ-36 95  
DQ-35 243  
DQ-34 104  
DQ-33 242  
DQ-32 97  
DQ-31 188  
DQ-30 43  
DQ-29 181  
DQ-28 36  
DQ-27 190  
DQ-26 45  
DQ-25 183  
DQ-24 38  
DQ-23 177  
DQ-22 32  
DQ-21 170  
DQ-20 25  
DQ-19 179  
DQ-18 34  
DQ-17 172  
DQ-16 27  
DQ-15 166  
DQ-14 21  
DQ-13 159  
DQ-12 14  
DQ-11 168  
DQ-10 23  
DQ-9 161  
DQ-8 16  
DQ-7 155  
DQ-6 10  
DQ-5 148  
DQ-4 157  
DQ-3 12  
DQ-2 150  
DQ-1 5

BG-1 207  
BG-0 63  
S1\_N 224  
S0\_N 81

MA\_ADD\_17 234  
MA\_ADD\_16 82  
MA\_ADD\_15 86  
MA\_ADD\_14 228  
MA\_ADD\_13 222  
MA\_ADD\_12 65  
MA\_ADD\_11 210  
MA\_ADD\_10 54  
MA\_ADD\_9 225  
MA\_ADD\_8 66  
MA\_ADD\_7 68  
MA\_ADD\_6 211  
MA\_ADD\_5 69  
MA\_ADD\_4 213  
MA\_ADD\_3 214  
MA\_ADD\_2 71  
MA\_ADD\_1 216  
MA\_ADD\_0 72

MA1\_CS\_L1 224  
MA1\_CS\_L0 81  
MA1\_CKE1 203  
MA1\_CKE0 60  
MA1\_ODT1 91  
MA1\_ODT0 87

MA\_RESET\_L 58  
MA\_EVENT\_L 78  
MA\_ALERT\_L 208  
MA\_ACT\_L 62  
MA\_PAROUT 222

SMB\_CLK\_DIMM 141  
SMB\_DATA\_DIMM 285

SA-2 238  
SA-1 140  
SA-0 139

DIMM2 (CHANNEL-A)-A4  
ADDRESS = 1:0 [SA1:SA0]

MA\_DATA[63..0] [3]

56-63

48-55

40-47

32-39

24-31

16-23

8-15

0-7

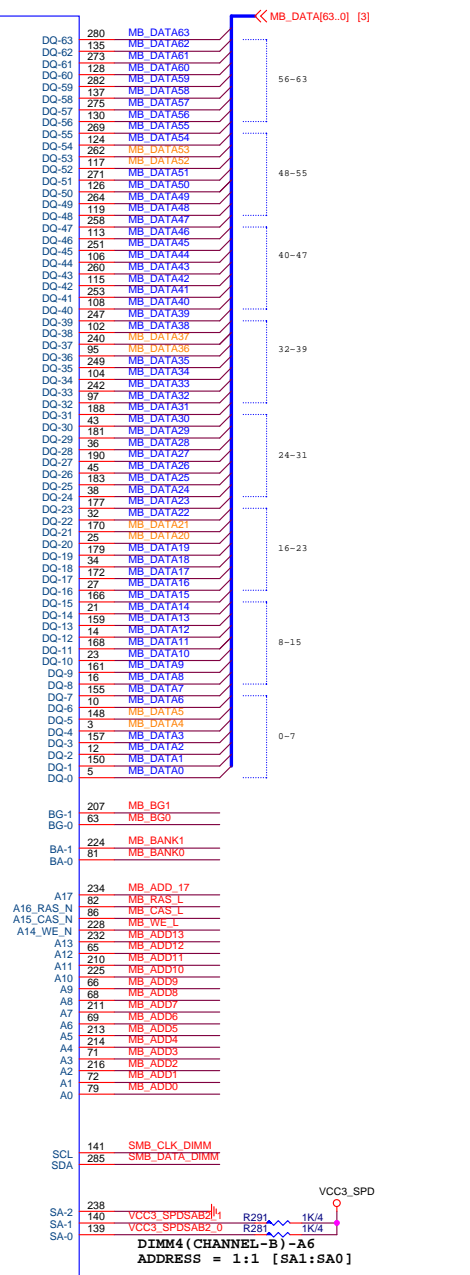
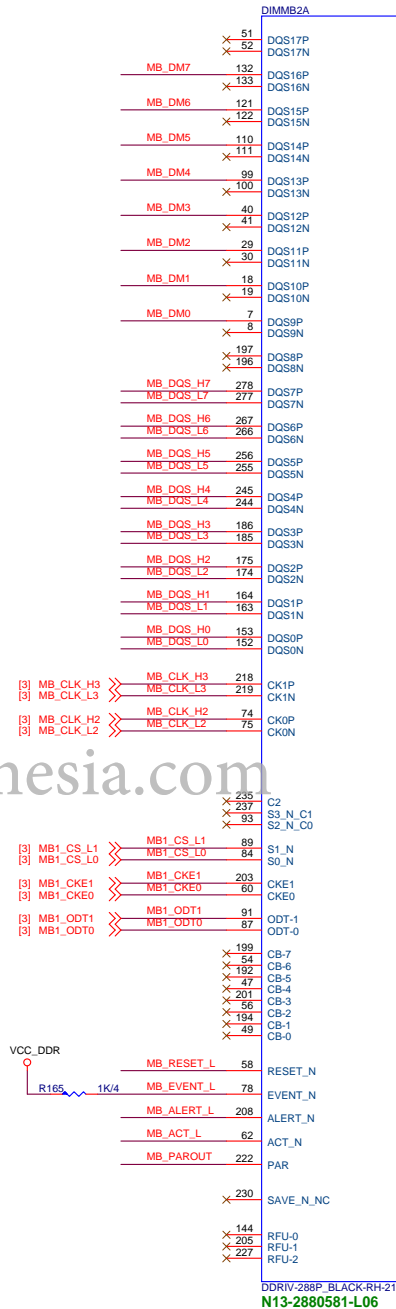
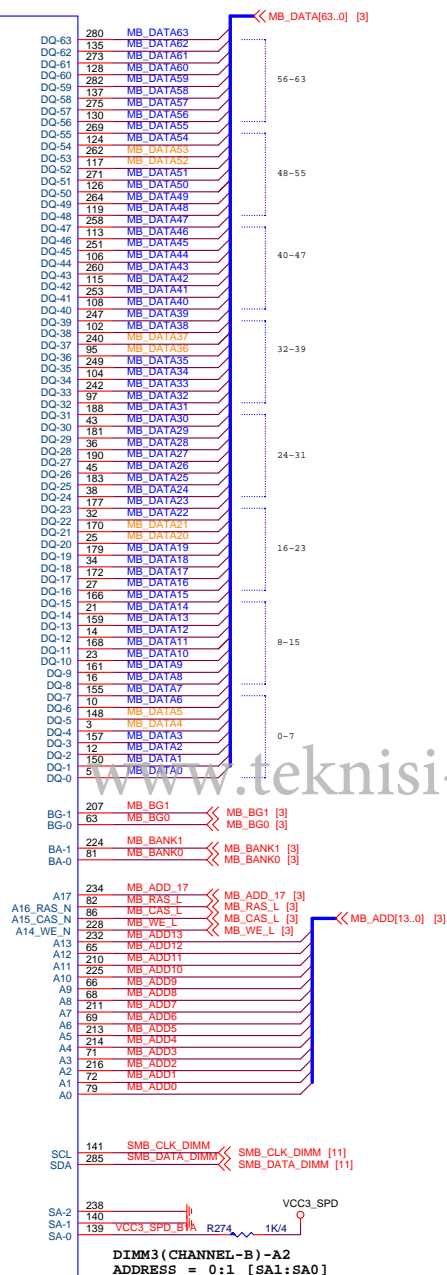
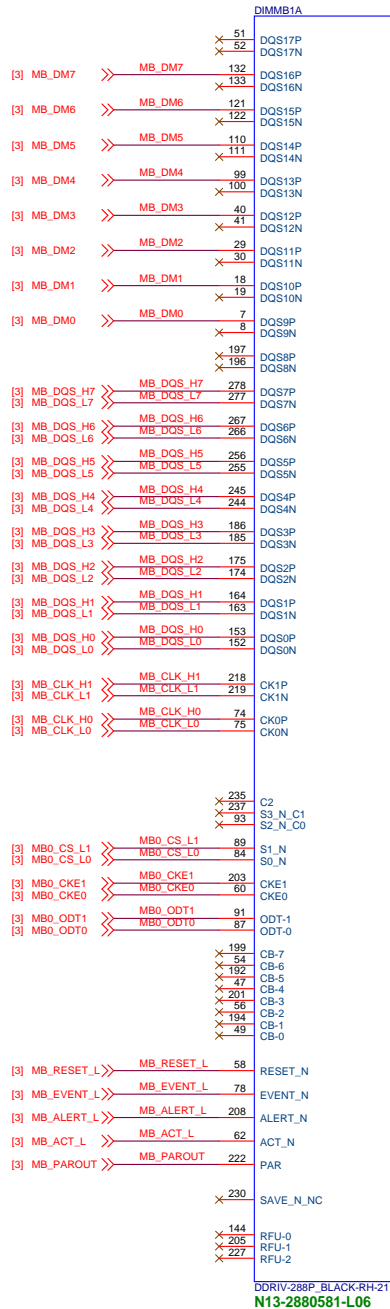


DDR4 DIMM CH-A

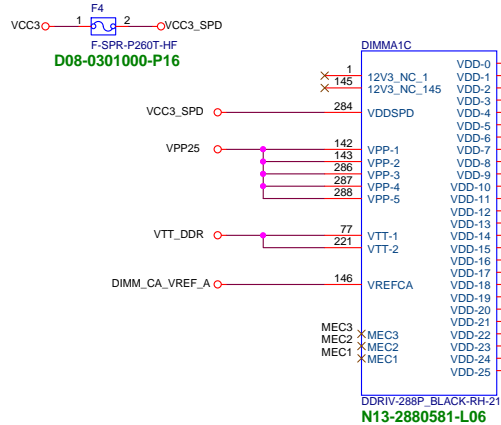
Size Custom MS-7A34

Date: Tuesday, June 20, 2017 Sheet 11 of 60

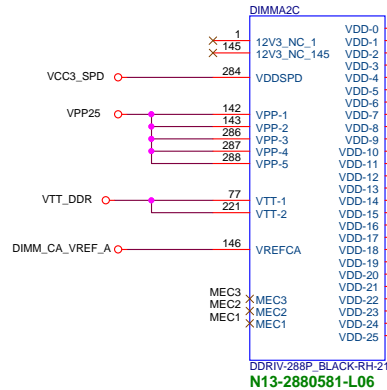
SCLK0 SCLK0 R287 0R/4 SMB\_CLK\_DIMM SMB\_CLK\_DIMM [12]  
SDATA0 SDATA0 R289 0R/4 SMB\_DATA\_DIMM SMB\_DATA\_DIMM [12]



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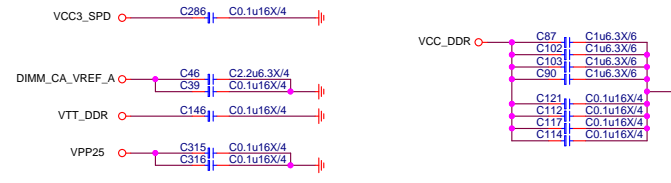
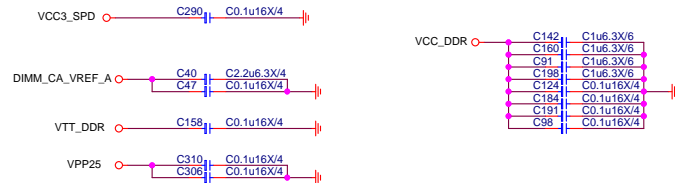
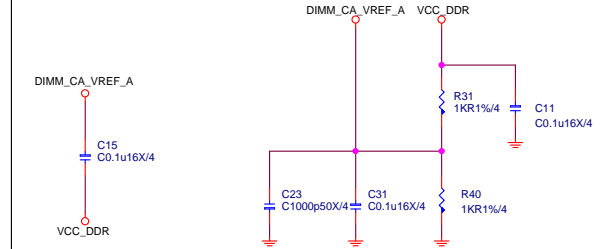


DIMM SLOT PN BY SPEC

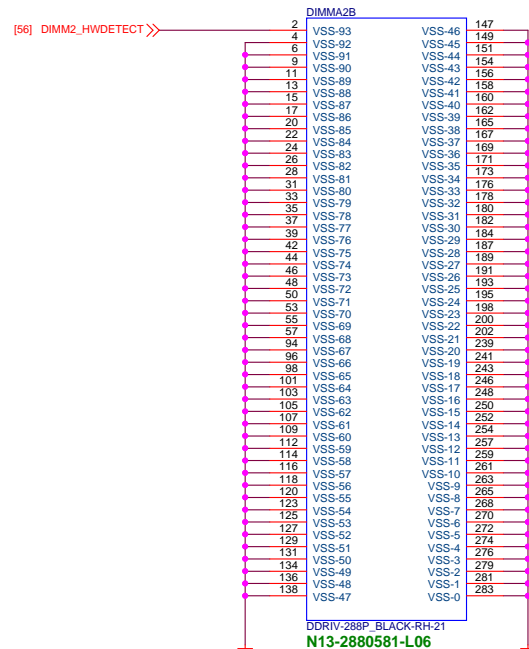
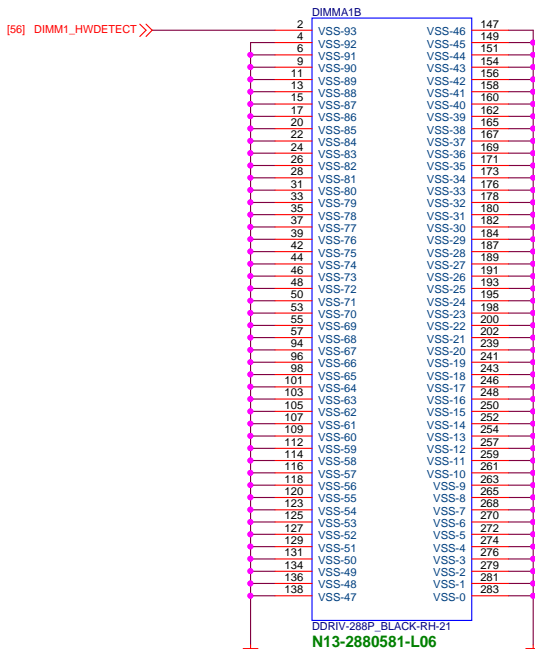


## DDR VREF

(place resistors close to DIMMs)



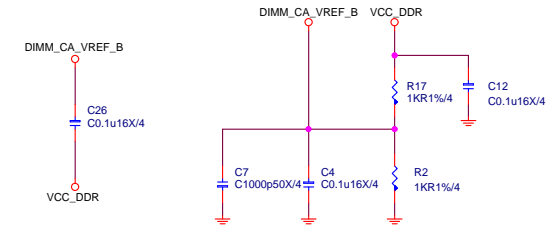
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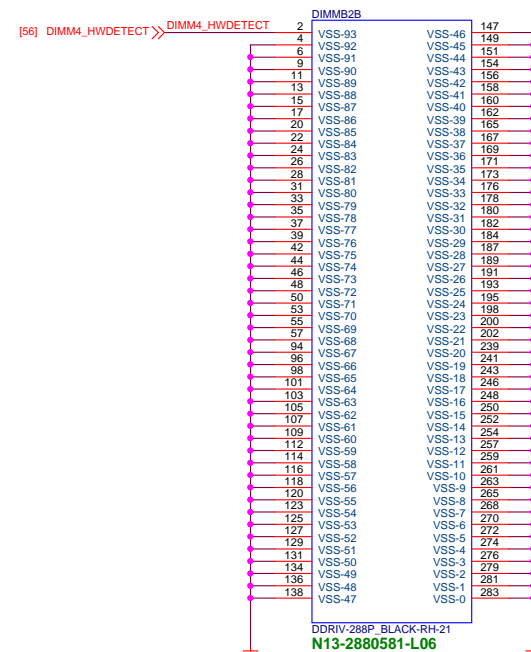
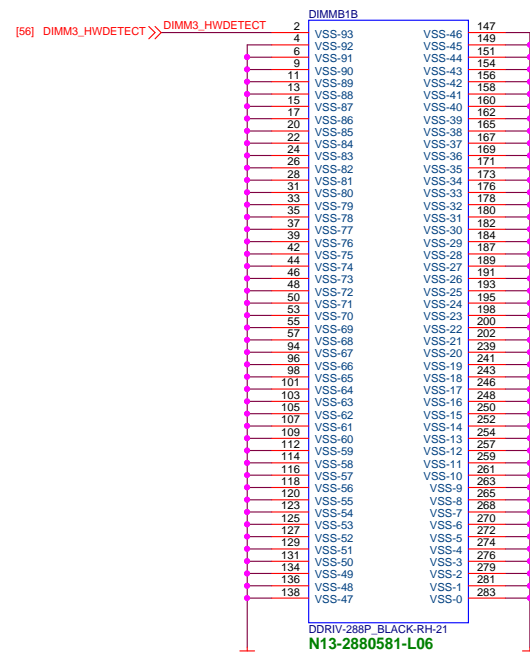


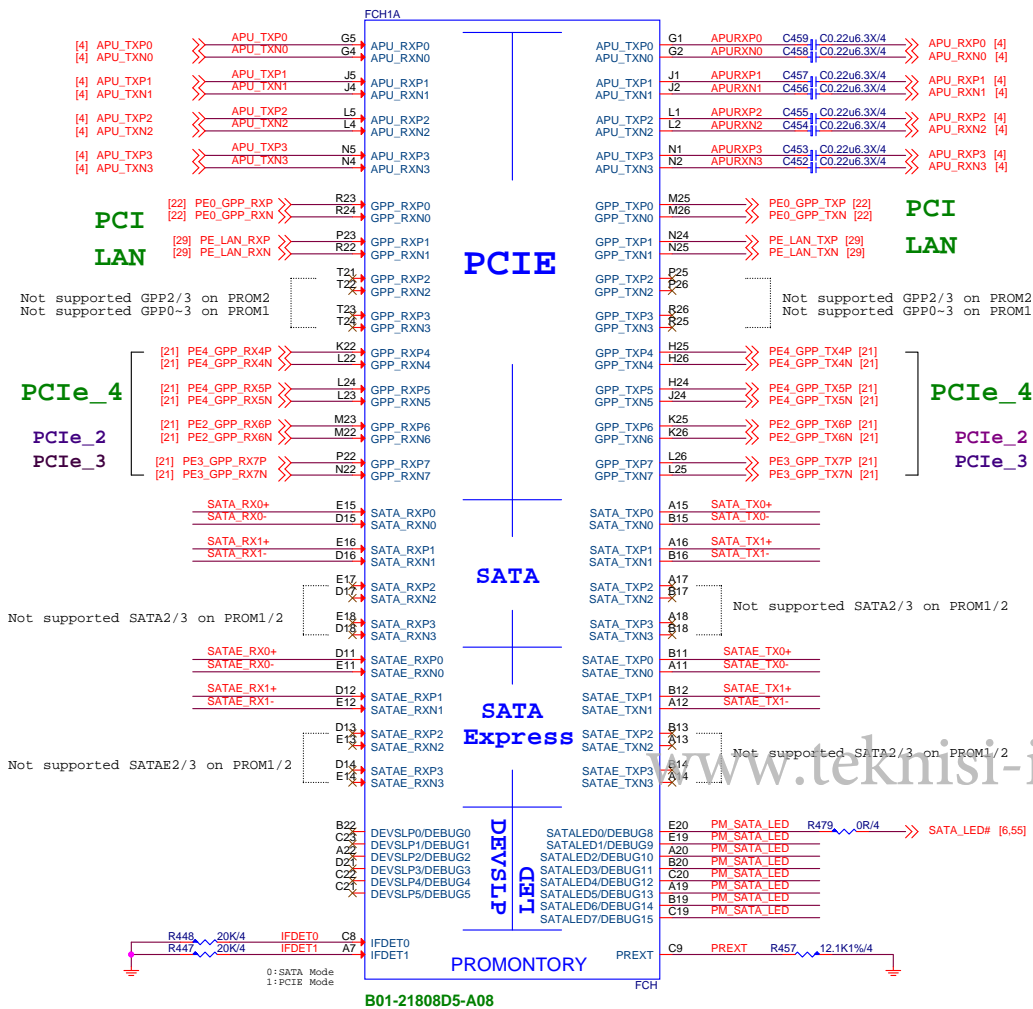
# DDR VREF

(place resistors close to DIMMs)

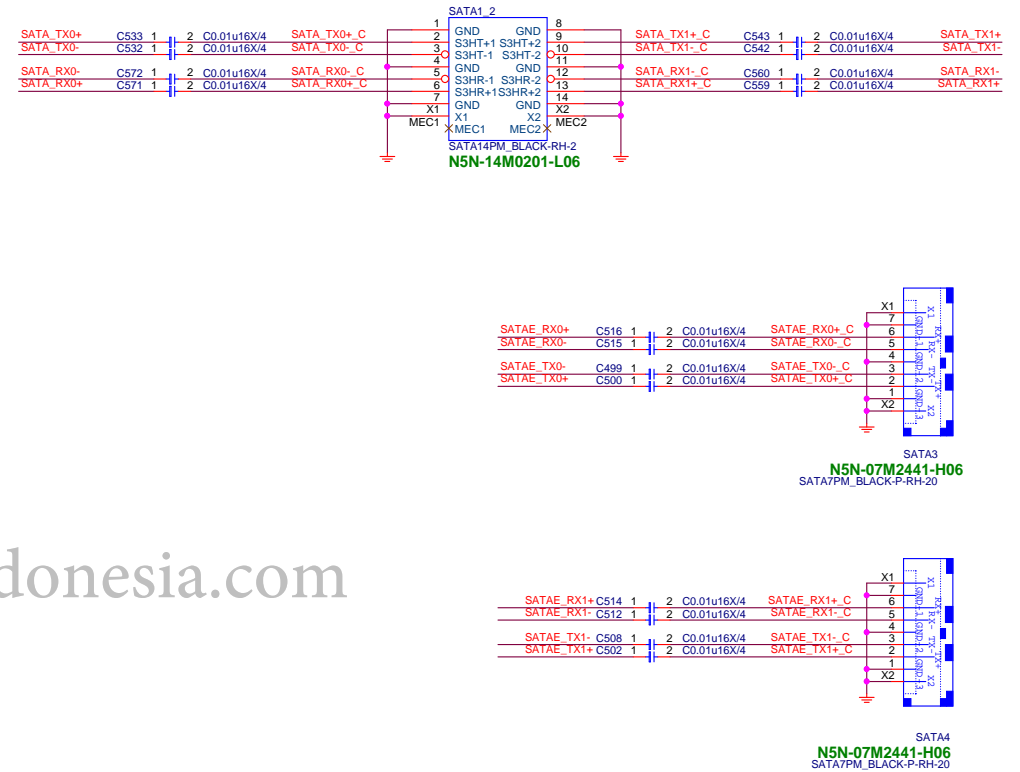


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## SATA Connector



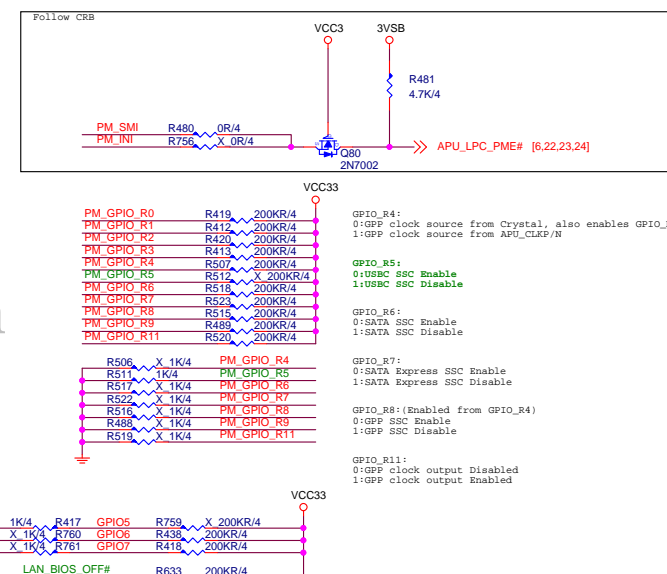


## Appendix C Port Mapping for Different Bus Models

BUS Model	USB			
	3.1 Gen2 10 Gbps	3.1 Gen1 5 Gbps	2.0	Debug Port
PROM4	USB_SSP Port0~1	USB_SS Port 0~5	USB_HSD Port0~13	USB_SSP Port0
PROM2	USB_SSP Port0~1	USB_SS Port 0~1	USB_HSD Port0~5	USB_SSP Port0
PROM1	USB_SSP Port0	USB_SS Port0	USB_HSD Port0~5	USB_SSP Port0

BUS Model	SATA 3.0	SATA Express	PCI Express® Gen1 GPP	PCI Express® CLK
PROM4	SATA port0~3	SATAE port0~3	GPP lane0~7	CLK0~7
PROM2	SATA port0~1	SATAE port0~1	GPP lane0~1	CLK0~1
PROM1	SATA port0~1	SATAE port0~1	GPP lane4~7	CLK4~7

CLK2.3不能用  
CLK1.3不能用



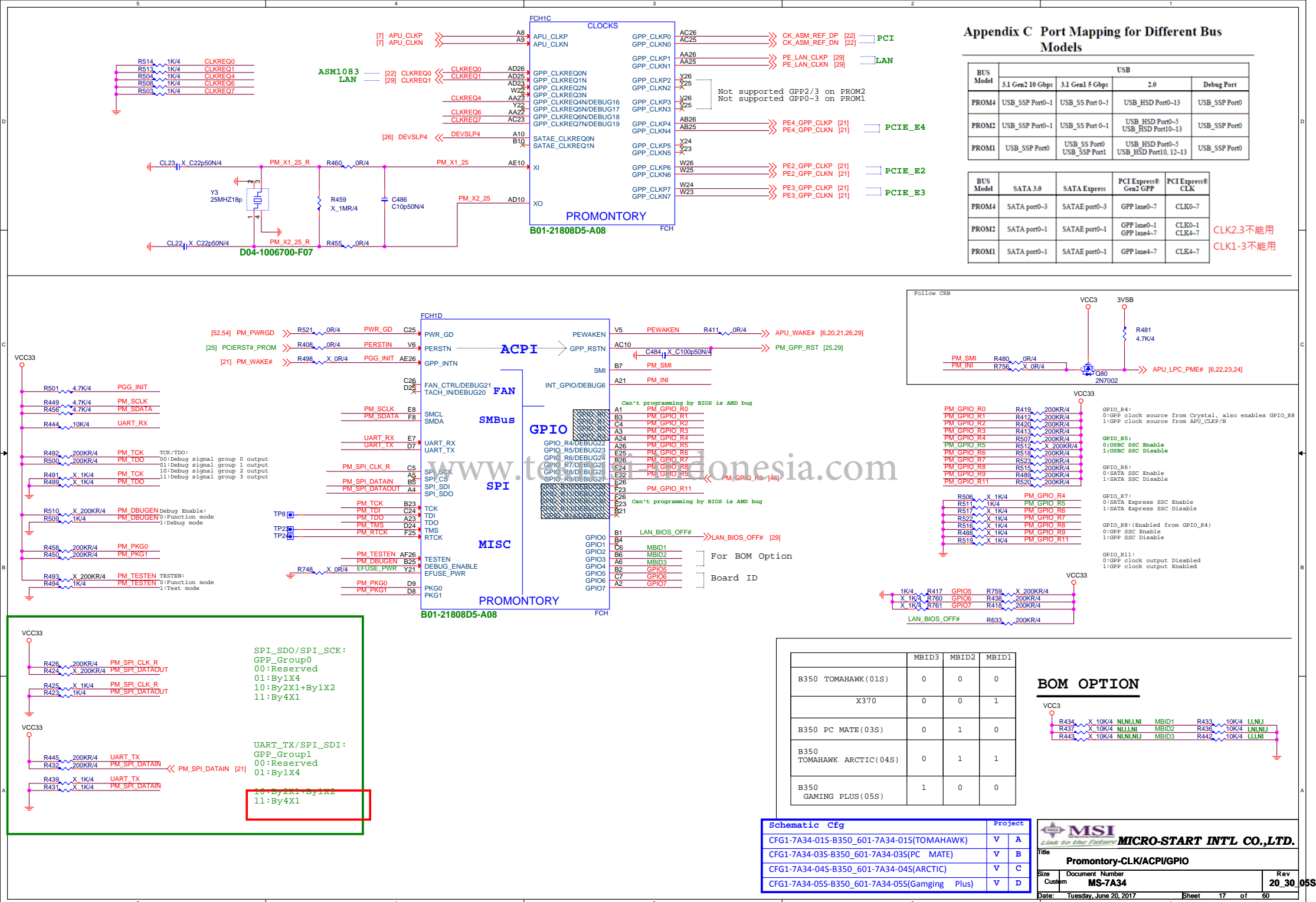
## BOM OPTION

	MBID3	MBID2	MBID1
B350 TOMAHAWK (01S)	0	0	0
X370	0	0	1
B350 PC MATE (03S)	0	1	0
B350 TOMAHAWK ARCTIC (04S)	0	1	1
B350 GAMING PLUS (05S)	1	0	0

Schematic Cfg	Project
CFG1-7A34-01S-B350_601-7A34-01S(TOMAHAWK)	V A
CFG1-7A34-03S-B350_601-7A34-03S(PC MATE)	V B
CFG1-7A34-04S-B350_601-7A34-04S(ARCTIC)	V C
CFG1-7A34-05S-B350_601-7A34-05S(Gaming Plus)	V D

MSI  
Link to the Future  
MICRO-START INTL CO.,LTD.

Title		Promontory-CLK/ACPI/GPIO	
Size	Document Number	Rev	
Custom	MS-7A34	20_30_05S	
Date:	Tuesday, June 20, 2017	Sheet	17 of 60





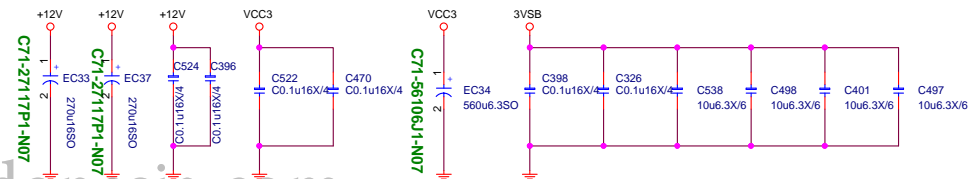
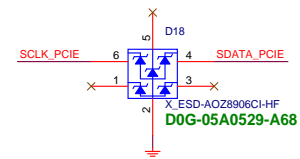
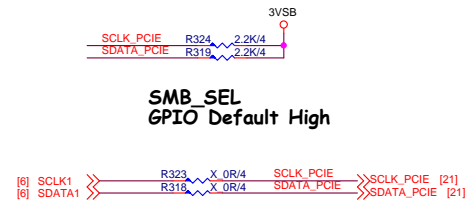
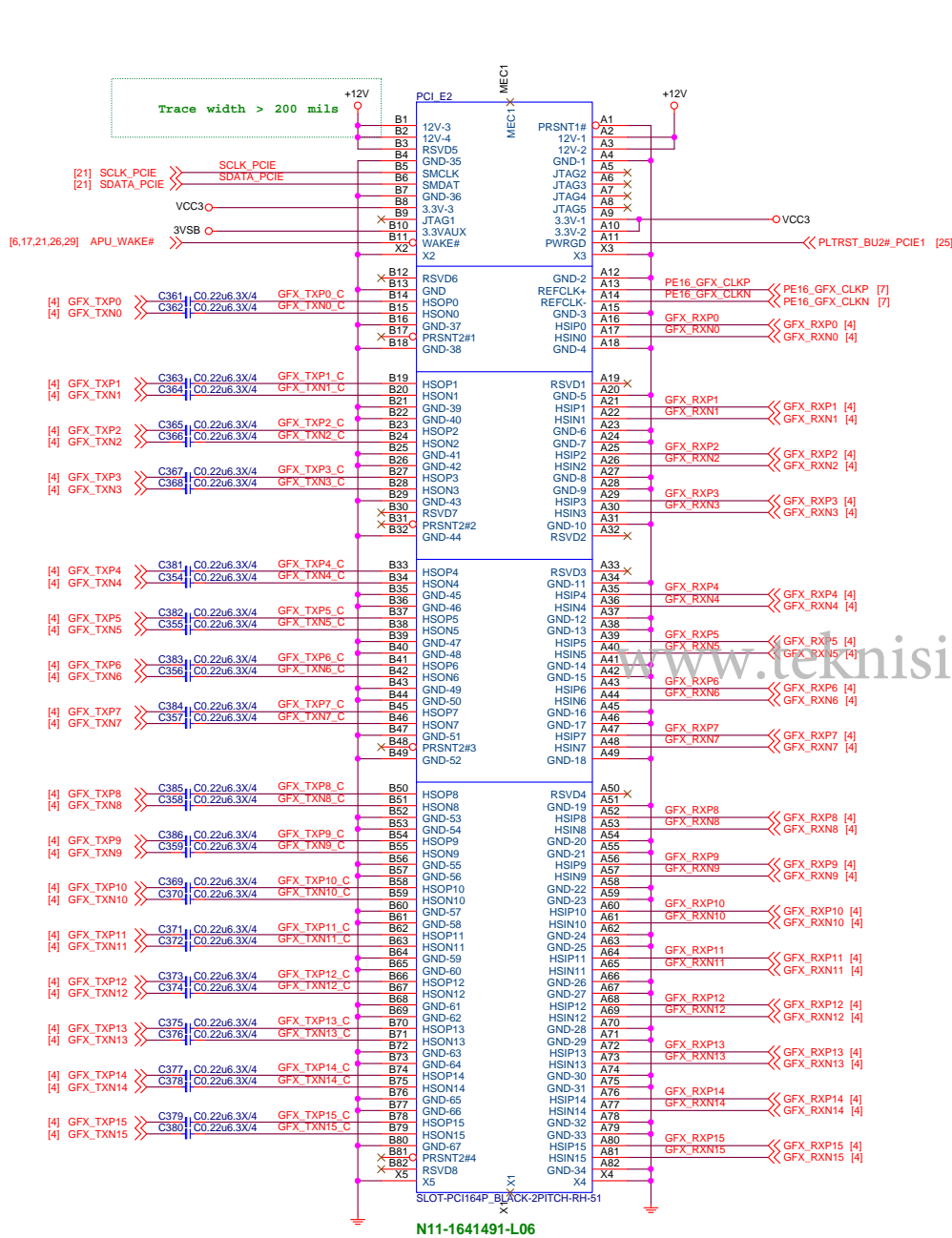


GND

PROMONTORY

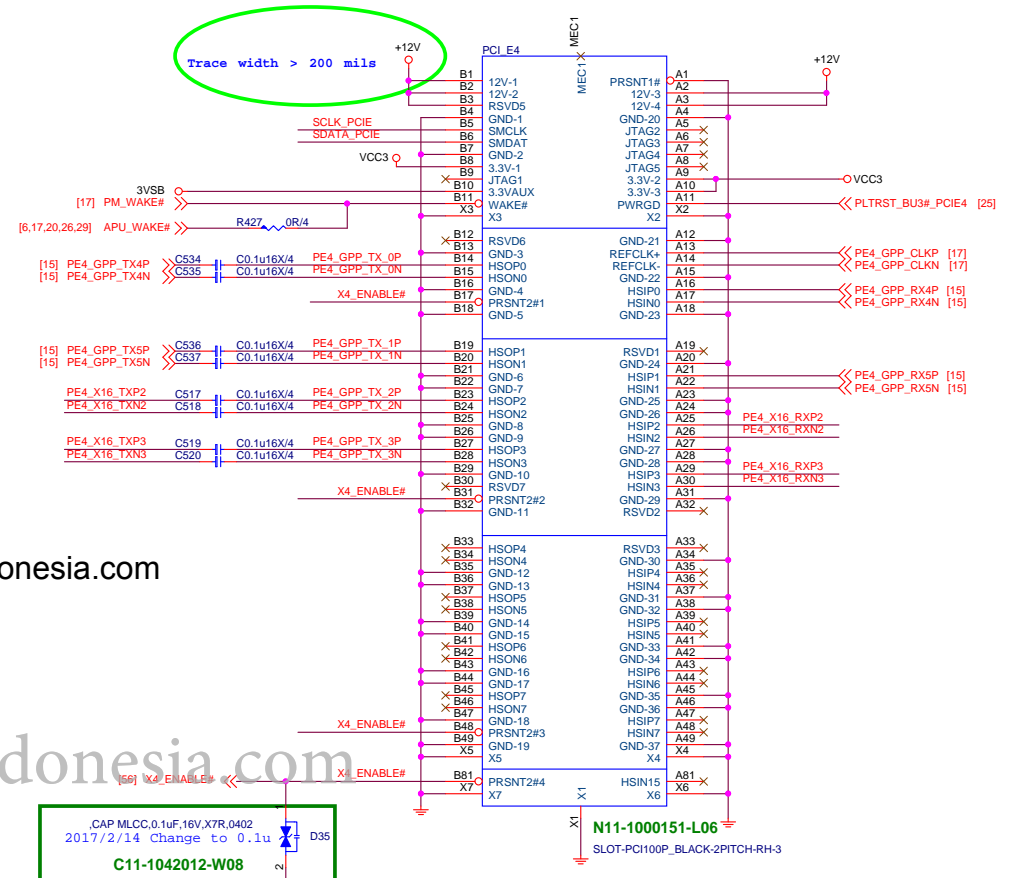
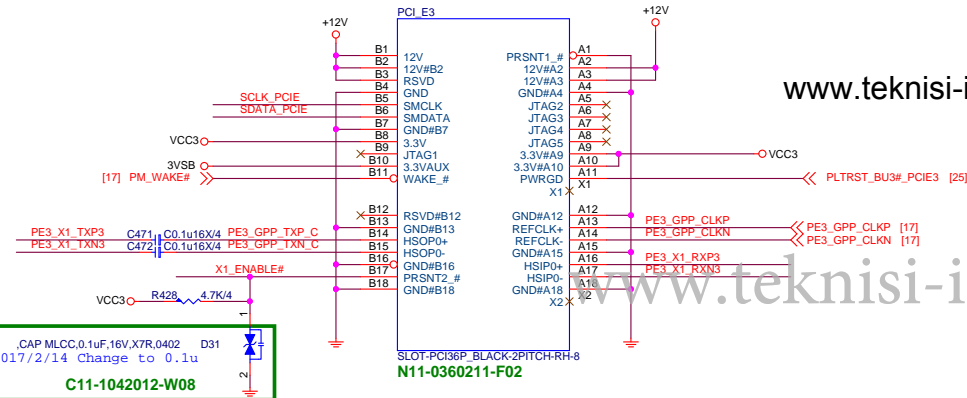
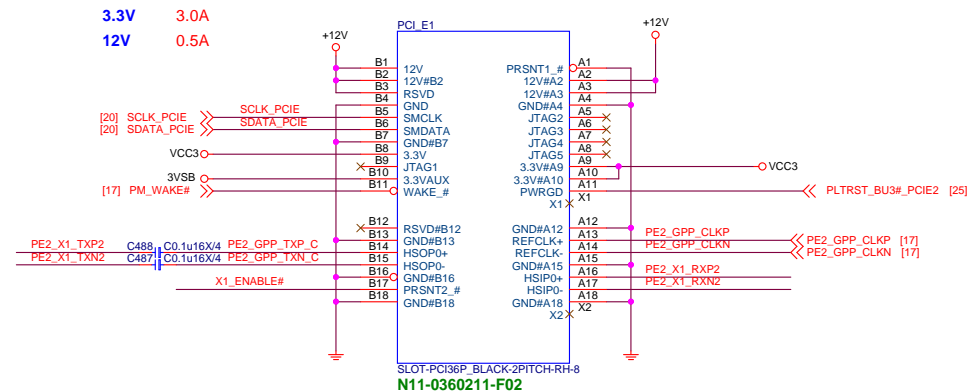
B01-21808D5-A08

**PCI EXPRESS x16 Slot**

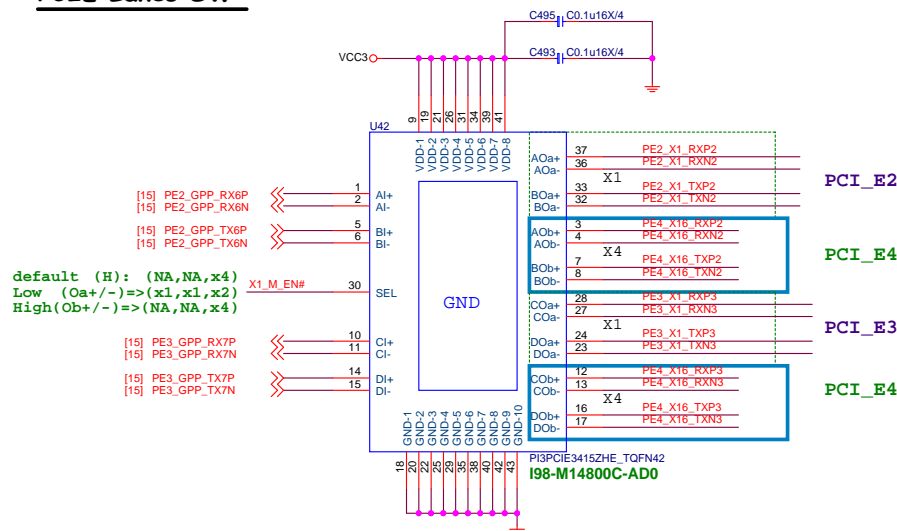


PCI Express x16 Slot		
+12V		- 5.5 A
+VCC3		- 3A
+3V3_S5	(wake)	- 375mA
+3V3_S5	(no wake)	- 20mA

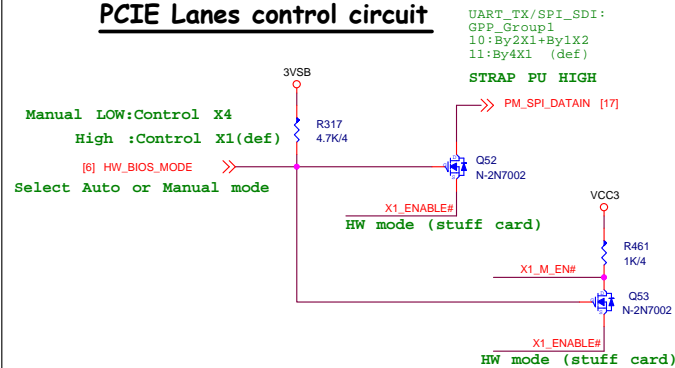
PCIEX1 12V 0.5A  
3.3V weak 375mA



## PCIE Lanes SW



## PCIE Lanes control circuit

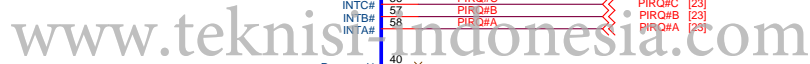


	HW_BIOS_MODE	Q52	Q53		X1_ENABLE#	PM_SPI_DATAIN
Manual x4	L	OFF	OFF		X	11:By4X1 (def)
Manual x1,x1,x2	H	ON	ON		L (Stuff PCIE_1)	10:By2X1+By1X2
HW x4	H	ON	ON		H	11:By4X1 (def)

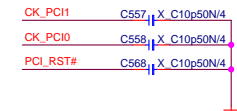
PCI Express x4 Slot *1		
+12V		- 2.1A
+VCC3		- 3A
+3V3_S5	(wake)	- 375mA
+3V3_S5	(no wake)	- 20mA
PCI Express x1 Slot *2		
+12V		- 1 A
+VCC3		- 6A
+3V3_S5	(wake)	- 750mA
+3V3_S5	(no wake)	- 40mA



Title		21 PCIE X1/PCIE X4	
Size	Document Number	Rev	
Custom	MS-7A34	20_30_05S	
Date:	Tuesday, June 20, 2017	Sheet	21 of 60



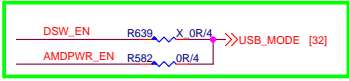
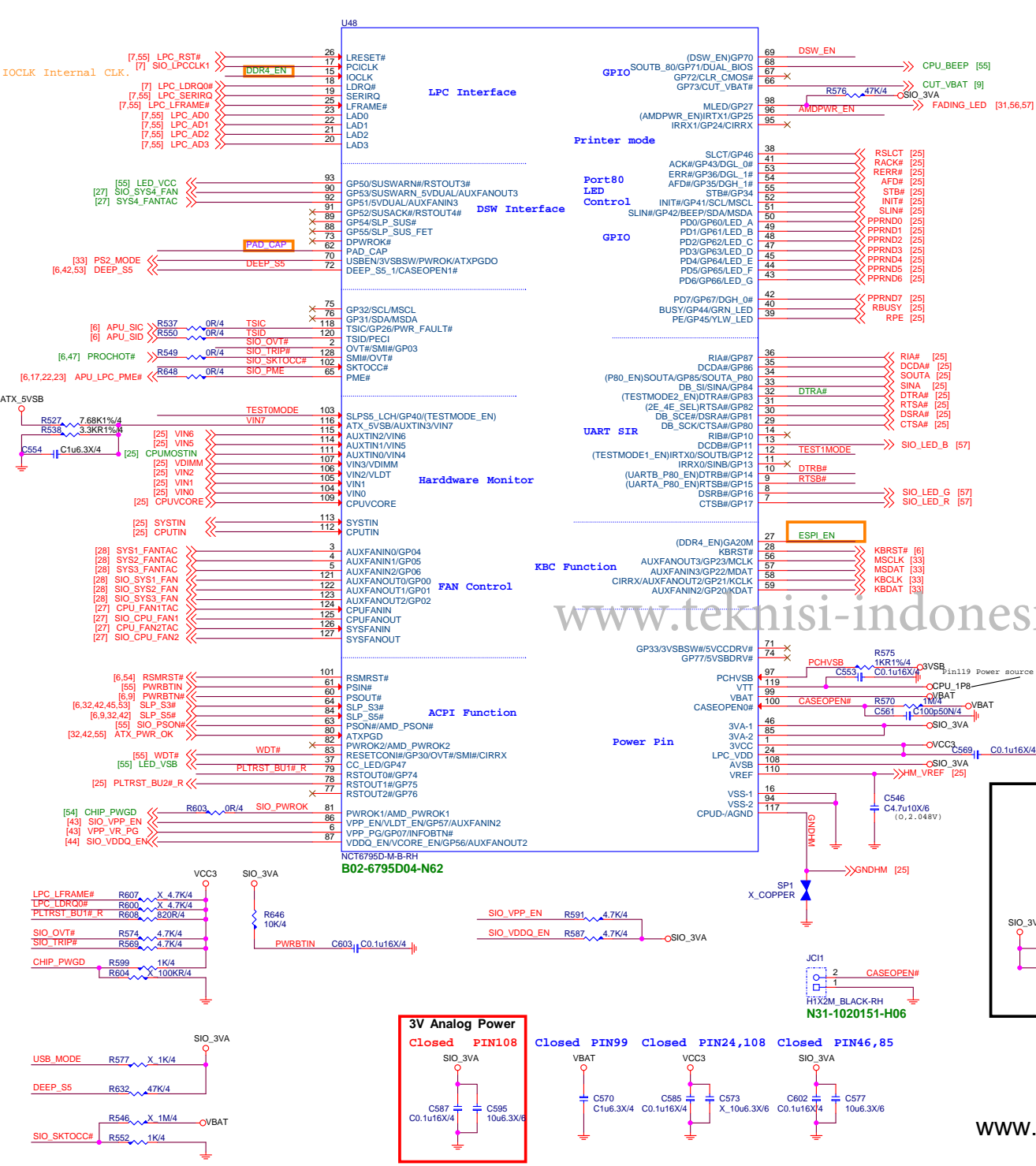
Size Custom	Document Description <b>ASM1083 PCI Bri.</b>	Rev 20_30_05S
Date: Tuesday, June 20, 2017		Sheet 22 of 60



$$\begin{aligned} V_{out} &= V_{ref} * (1 + (R1/R2)) \\ &= 0.8 * (1 + (1K/2K)) \\ &= 1.2V \end{aligned}$$



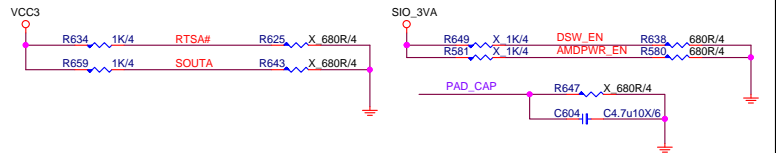




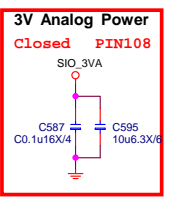
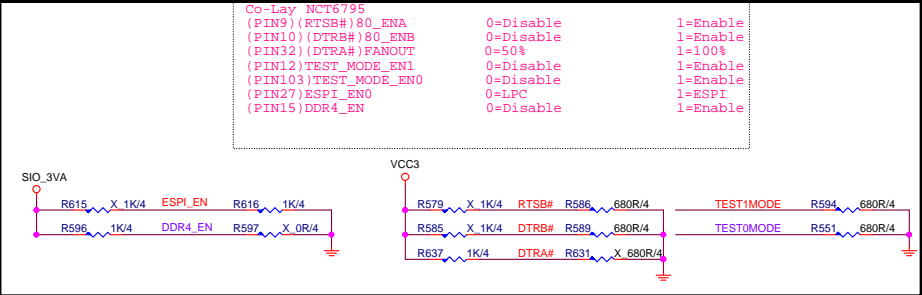
POWER ON STRAPPING PIN FOR NCT6793/6795

PIN	6793/6795 NAME	Circuit NAME	0	1	Strap Point
9	UARTA_P80_EN	RTSB#	DISABLE UARTA80	ENABLE UARTA80	LRESET
10	UARTB_P80_EN	DTRB#	DISABLE UARTB80	ENABLE UARTB80	LRESET
12	TEST1MODE_EN	TEST1MODE	DISABLE TEST1MODE	ENABLE TEST1MODE	LRESET
15	6793 test point 6795 DDR4_EN	6793 test point 6795 DDR4_EN	6793 NA 6795 Disable	6793 NA 6795 Enable	
27	6793 DDR4_EN 6795 ESPI_EN	A20GATE	6793 Disable 6795 Disable	6793 Enable 6795 Enable	
31	2E_4E_SEL	RTSA#	I/O ADDRESS 2E	I/O ADDRESS 4E	LRESET
32	6793 TESTMODE2_EN 6795 FANOUT_DEF_EN	DTRA#	6793 disable 6795 default 50%	6793 Enable 6795 default 100%	INTERNAL PWROK
34	P80_EN	SOUTA	ENABLE Non_PORT80	ENABLE PORT80	LRESET
69	DSW_EN	DSW_EN	DISABLE INTEL DSW	ENABLE INTEL DSW	INTERNAL RSMRST
96	AMDPWR_EN	AMDPWR_EN	DISABLE AMD PWR SEQ	ENABLE AMD PWR SEQ	INTERNAL RSMRST
103	TESTMODE_EN	WDT#	DISABLE TESTMODE	ENABLE TESTMODE	INTERNAL RSMRST

Note:  
If PIN34 strapping low, BIOS must programming LPT or GPIO



Co-Lay NCT6795  
(PIN9) (RTSB#) 80\_ENA 0=Disable 1=Enable  
(PIN10) (DTRB#) 80\_ENB 0=Disable 1=Enable  
(PIN32) (DTRA#) FANOUT 0=50% 1=100%  
(PIN12) TEST\_MODE\_EN1 0=Disable 1=Enable  
(PIN103) TEST\_MODE\_EN0 0=Disable 1=Enable  
(PIN27) ESPI\_EN0 0=LPC 1=ESPI  
(PIN15) DDR4\_EN 0=Disable 1=Enable

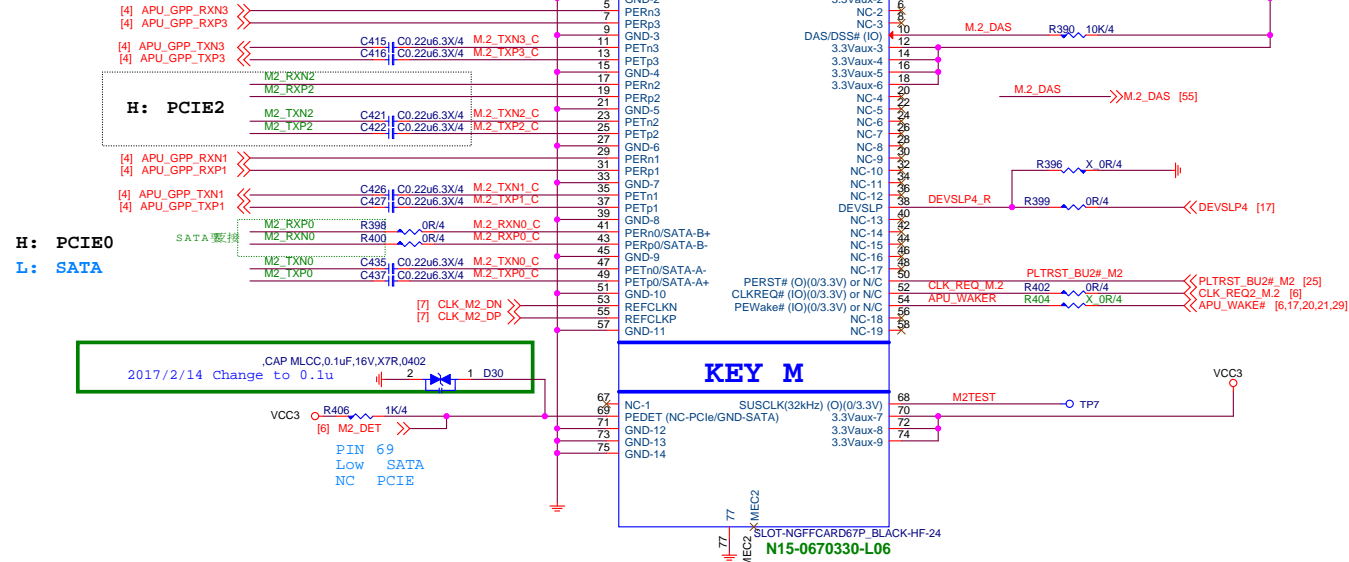


Closed PIN99 Closed PIN24,108 Closed PIN46,85

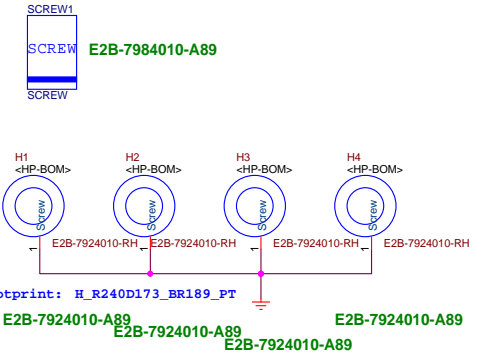
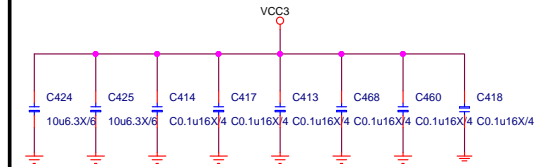


# M.2 Connector

3.3V@2.5A

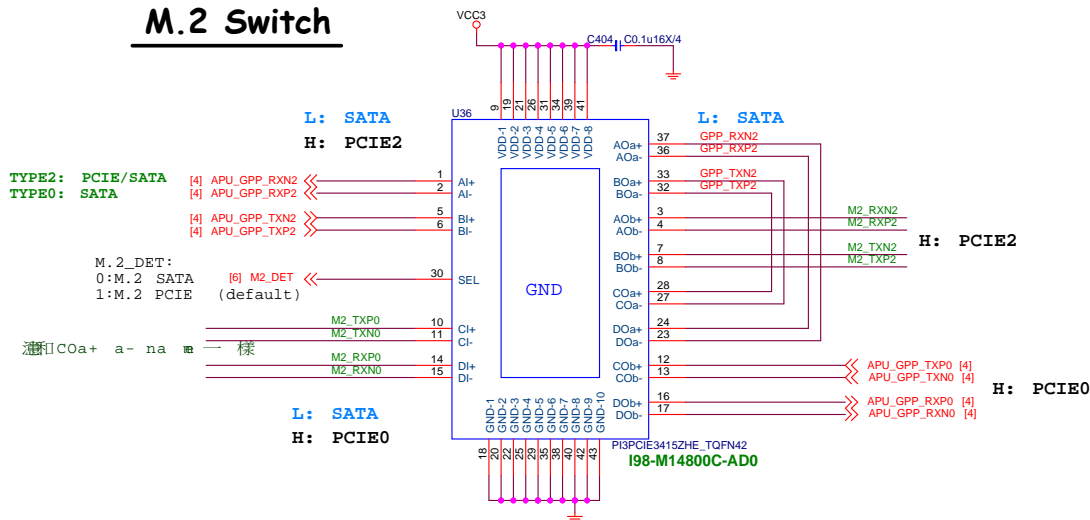


3.3V@2.5A

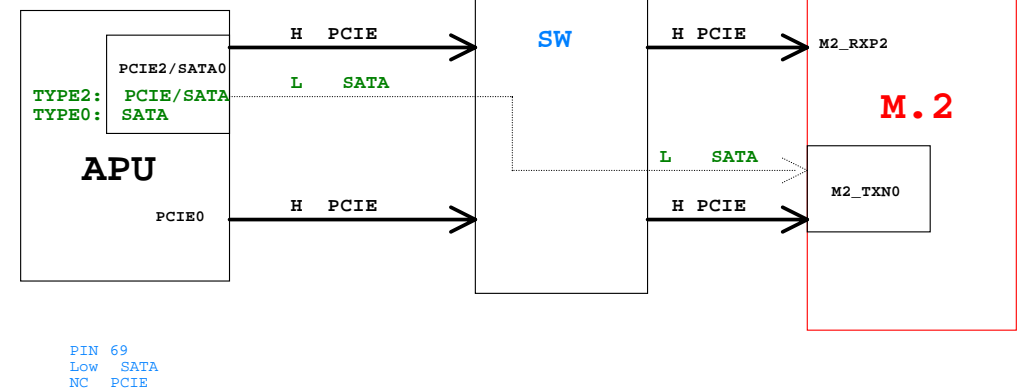


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## M.2 Switch



HW Default  
 M.2 Insert



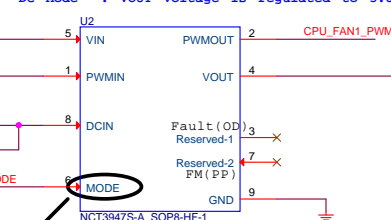
SW:  
 H:M.2 PCIE  
 L:M.2 SATA

# CPUFAN

TYPE K : 4 PIN CPU FAN USE NCT3947S USE PCH GPIO CONTROL FAN MODE

GPIO 自由切换 PW M/DC

PWM Mode : VOUT voltage follows VIN voltage  
DC Mode : VOUT voltage is regulated to 3.8\*DCIN voltage



From SIO

[24] SIO\_CPU\_FAN1

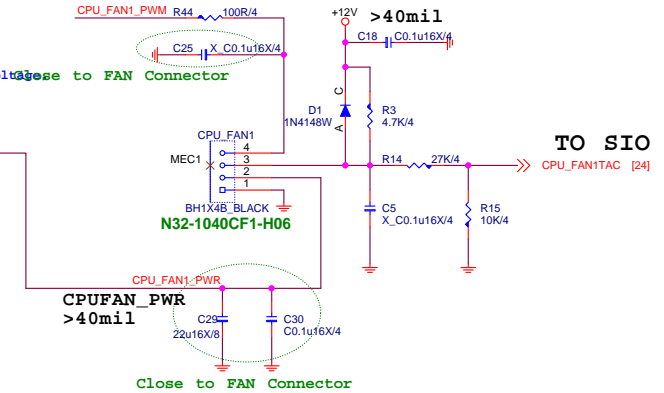
FIX MODE unstuff

	MODE(PIN7)
PWM MODE	HIGH
DC MODE	LOW
Default	AUTO MODE GPI(Floating)

Internall pull up 1.65V

GPIO Control

I22-3947S12-N62

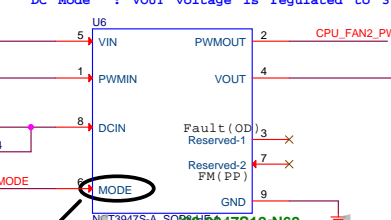


TO SIO

CPU\_FAN1TAC [24]

Close to FAN Connector

PWM Mode : VOUT voltage follows VIN voltage  
DC Mode : VOUT voltage is regulated to 3.8\*DCIN voltage.



From SIO

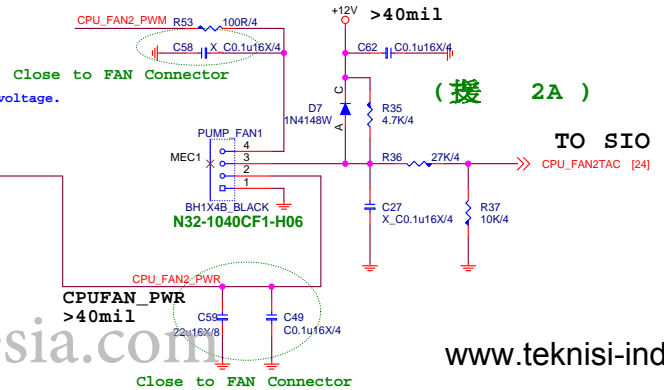
[24] SIO\_CPU\_FAN2

FIX MODE unstuff

	MODE(PIN7)
PWM MODE	HIGH
DC MODE	LOW
Default	AUTO MODE GPI(Floating)

GPIO Control

I22-3947S12-N62



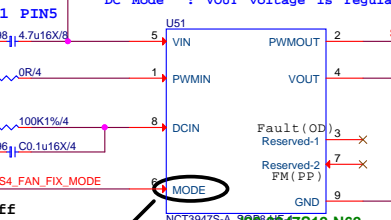
TO SIO

CPU\_FAN2TAC [24]

Close to FAN Connector

# SYSFAN

PWM Mode : VOUT voltage follows VIN voltage  
DC Mode : VOUT voltage is regulated to 3.8\*DCIN voltage.



From SIO

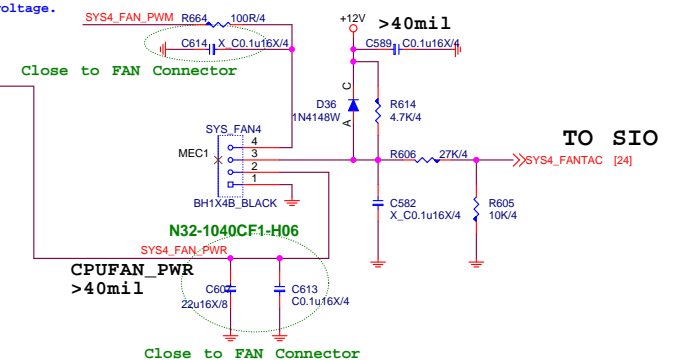
[24] SIO\_SYS4\_FAN

FIX MODE unstuff

	MODE(PIN7)
PWM MODE	HIGH
DC MODE	LOW
Default	AUTO MODE GPI(Floating)

GPIO Control

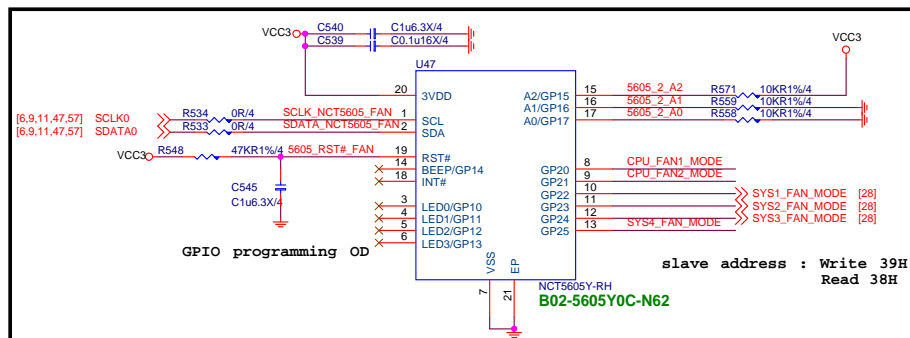
I22-3947S12-N62



TO SIO

SYS4\_FANTAC [24]

Close to FAN Connector



slave address : Write 39H Read 38H

NCT3947S-A SOP8-HF-1

B02-5605Y0C-N62

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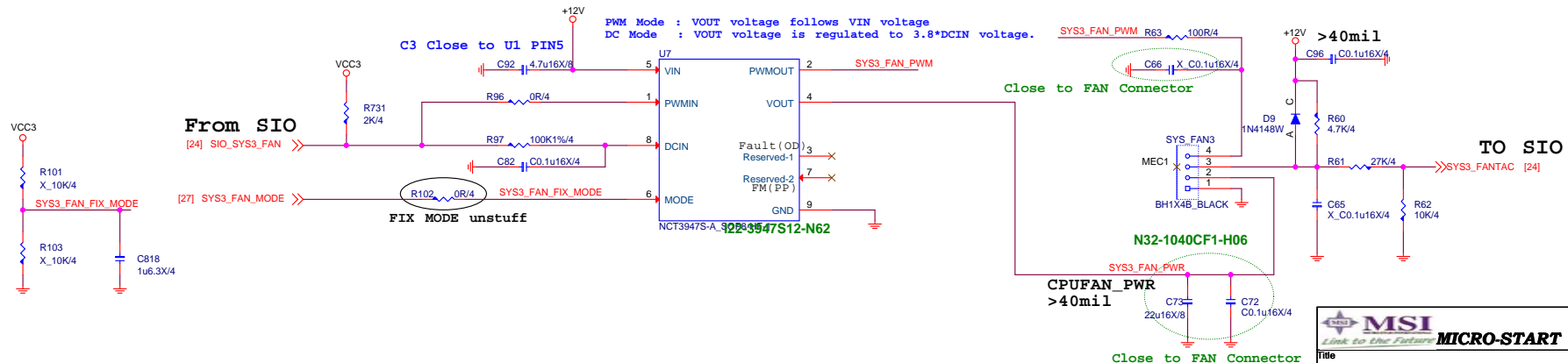
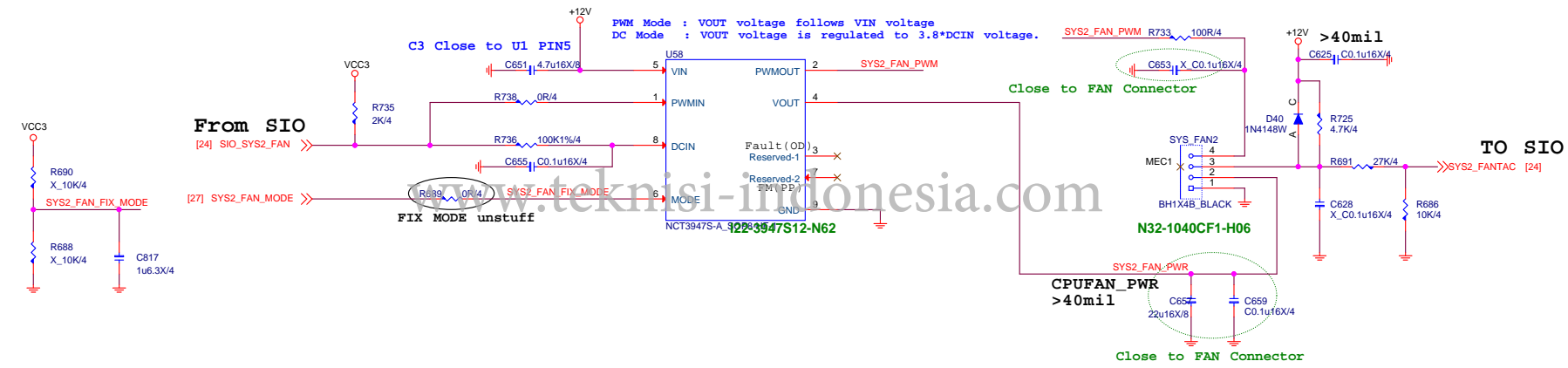
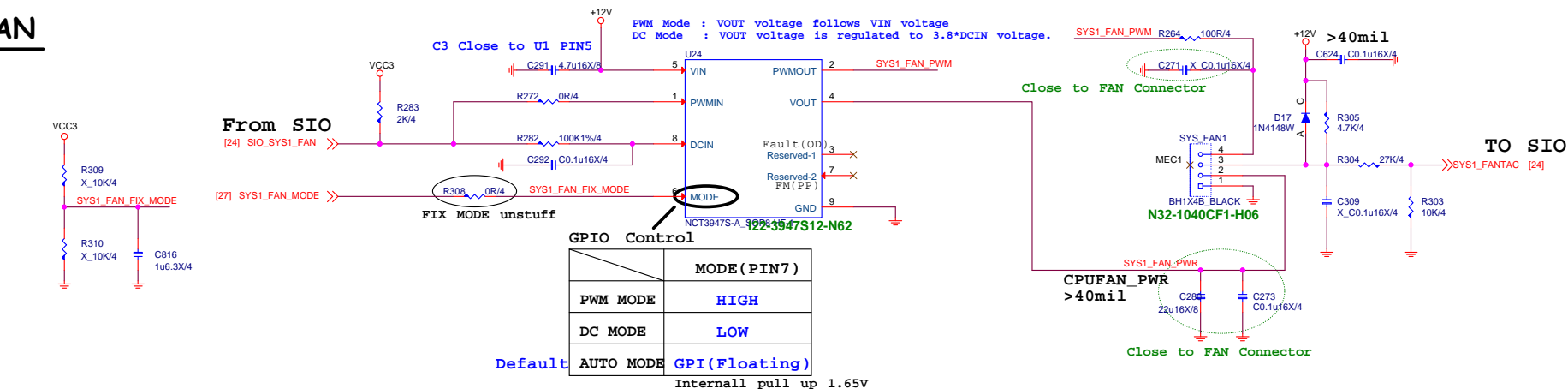
CPU FAN Control

Size Custom Document Number MS-7A34 Rev 20\_30\_05S

Date: Tuesday, June 20, 2017 Sheet 27 of 60

Type H : 4/3 PIN SYS FAN FROM NCT3943S(USE SIO CUT POWER)

SYSFAN



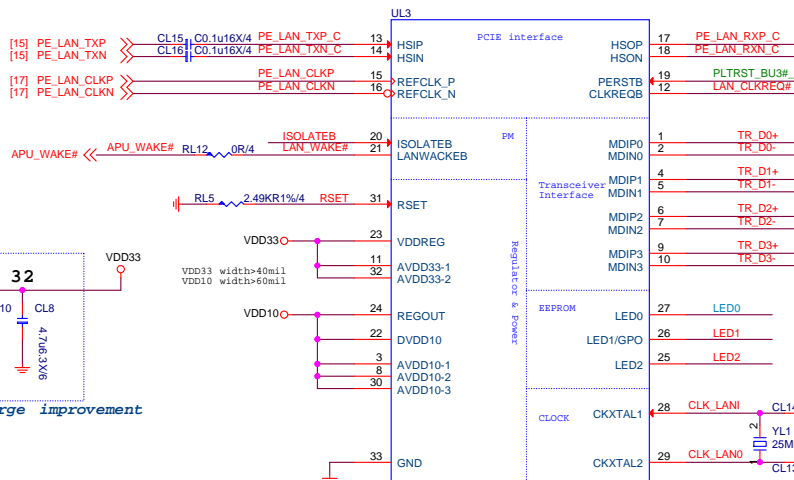
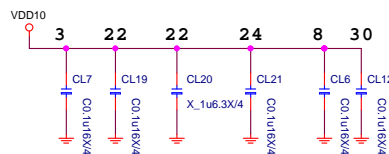
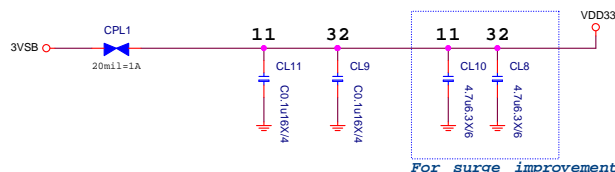


# RTL8111H Giga LAN

3.3V@177.57mA



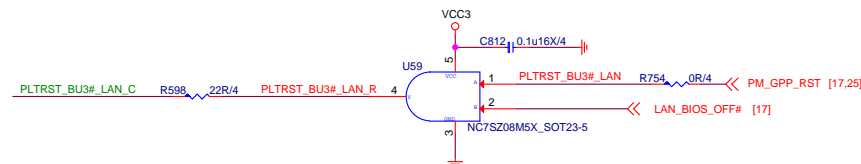
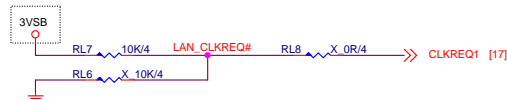
Remove pull-up R if R existence on motherboard (or SB has internal pull-up R).



Pin33: 4 via from top layer to GND layer and make the via at the center of IC.

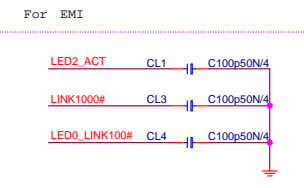
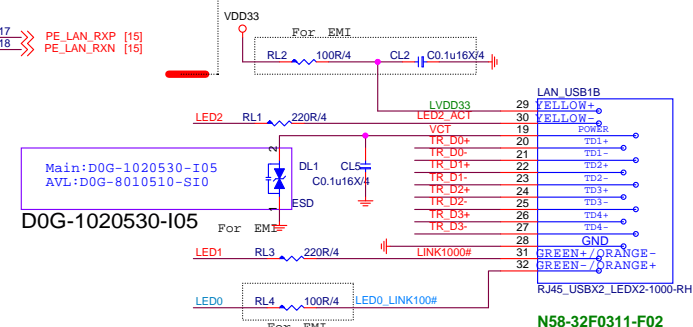
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Pull-up resistor RL9 required to either 3.3V suspend or core rail depending on the power well of the PCH input CLKREQ# buffer.



PIN19:  
AMD platform connect to PCIE\_RST#,  
don't connect to A-RST#.  
INTEL platform connect to PLT\_RST#,

## LAN Connector

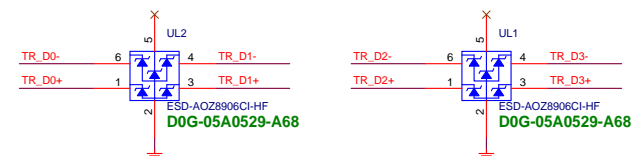


## 8111H POWER Consumption

	3.3V @ mA	mW
10 M Idle/TxRx	9.9/84.69	32.67/279.48
100 M Idle/TxRx	48.11/92.44	158.76/305.05
Giga Idle/TxRx	124.5/177.57	410.85/585.98
ALDPS	5.50	18.15

## ESD Protect

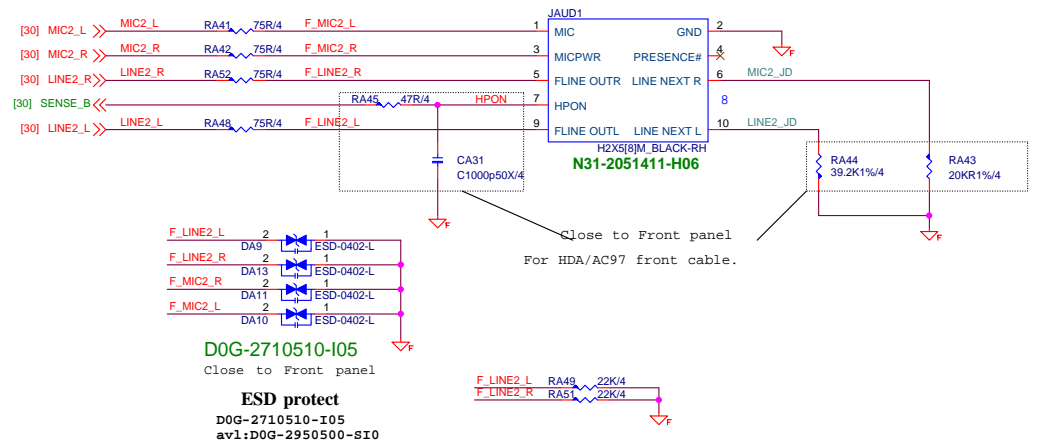
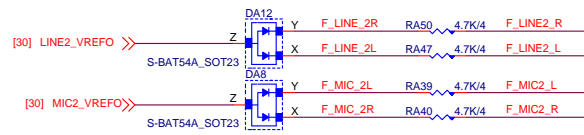
D0G-0200529-A68  
D0G-0100619-I05



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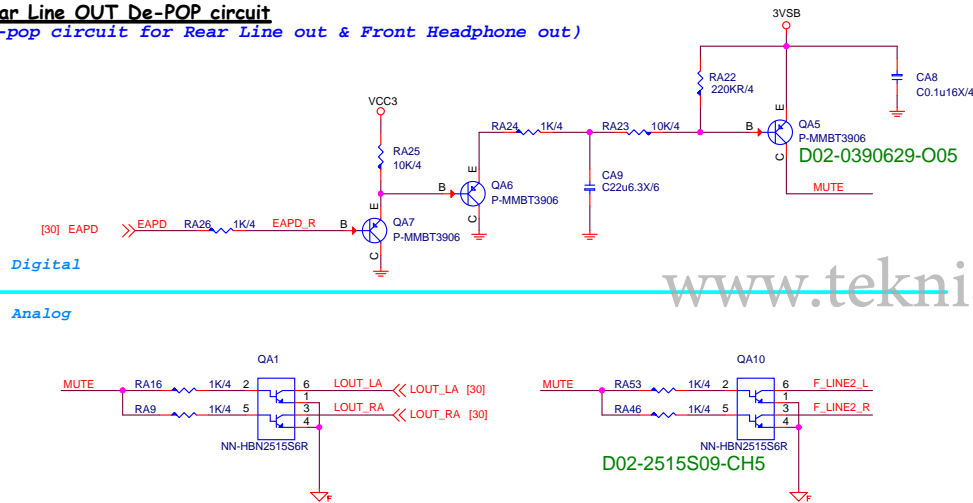
Title <b>LAN-8111H</b>		Rev <b>20_30_05S</b>
Size Custom	Document Number <b>MS-7A34</b>	Date Tuesday, June 20, 2017
Sheet 29 of 60		

## Follow APU power well



### Rear Line OUT De-POP circuit

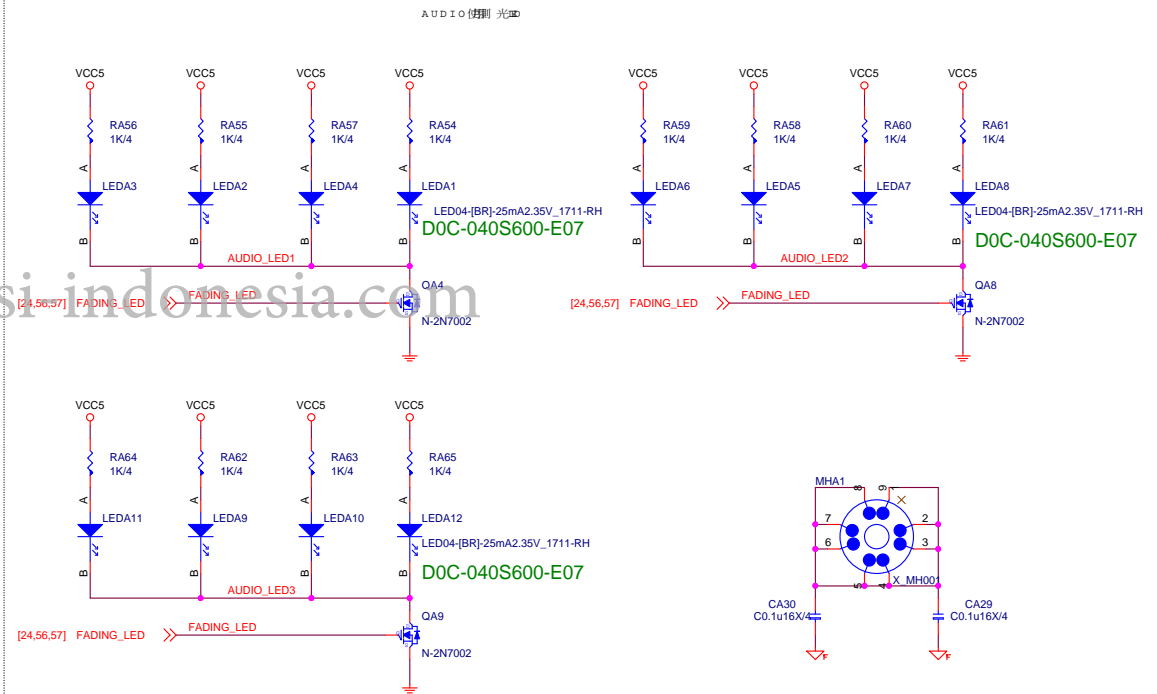
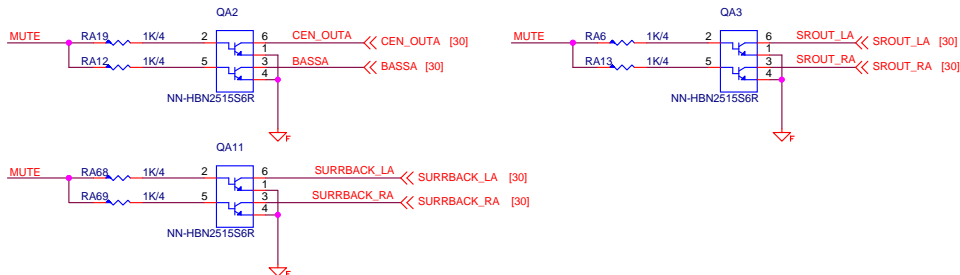
(De-pop circuit for Rear Line out & Front Headphone out)



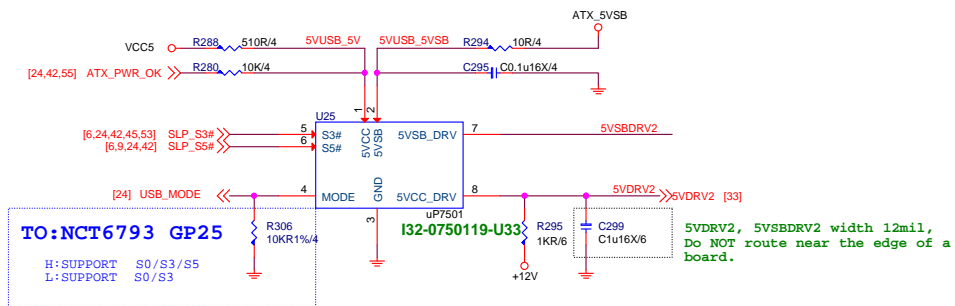
Digital

Analog

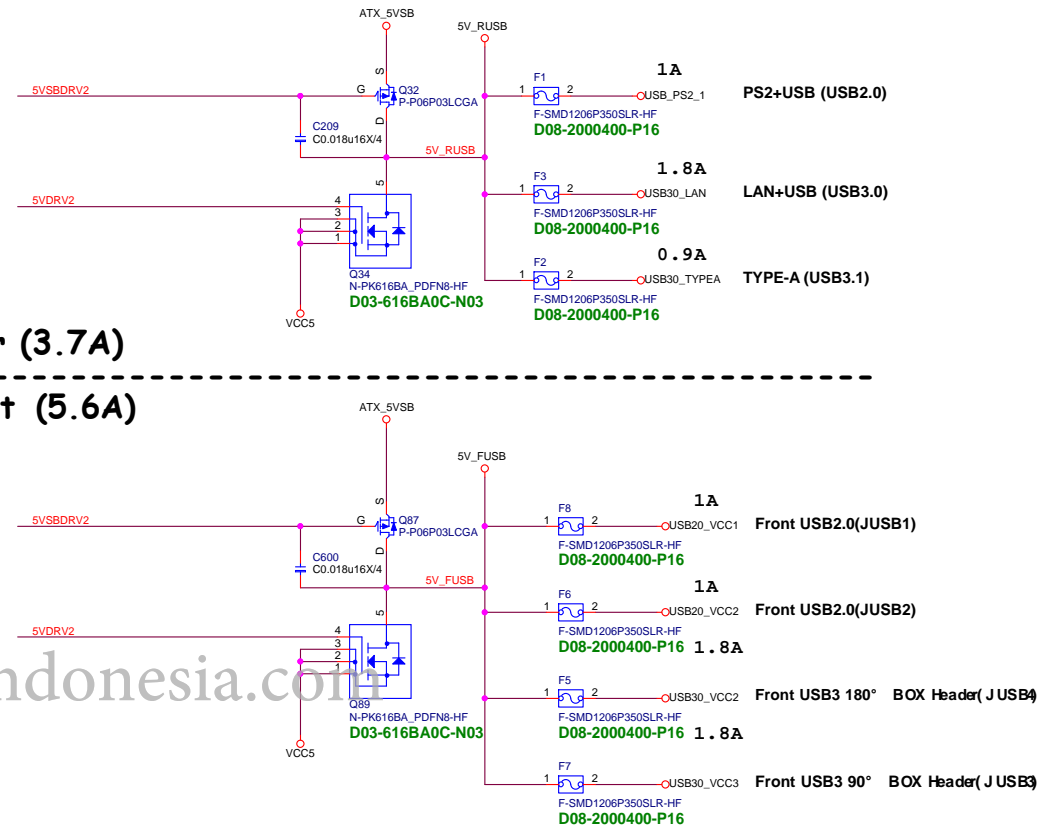
(add de-pop circuit by PM spec or customer request,  
NOTE: add de-pop circuit need to change CA5,CA6, CA7, CA9,to TVS)



## USB Power

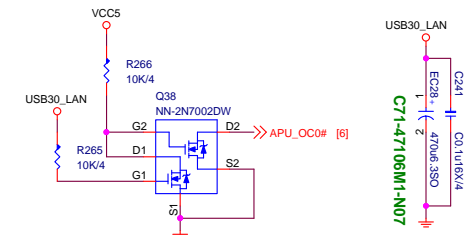
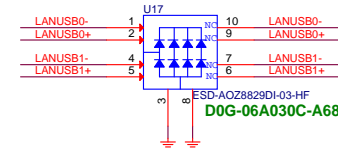
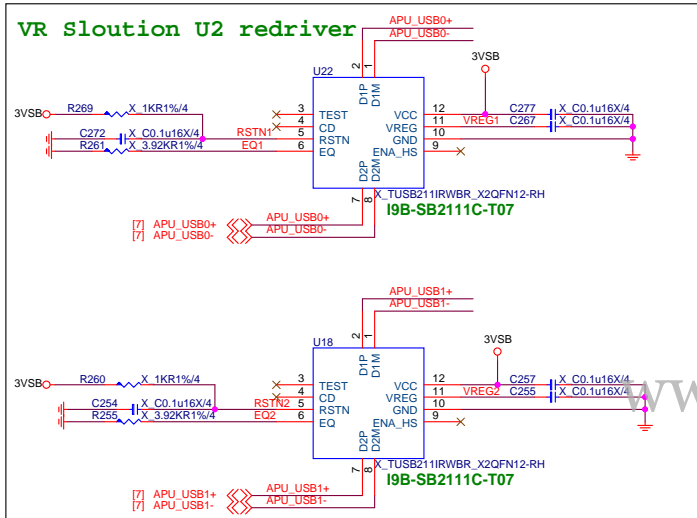
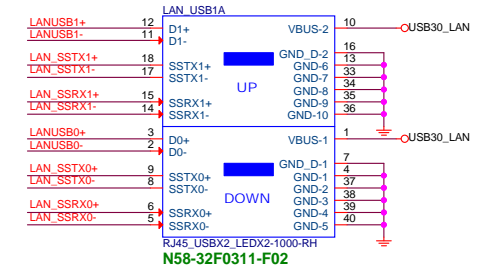
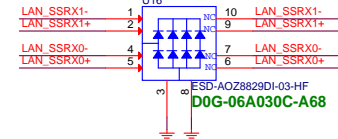
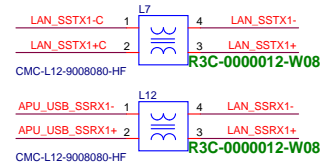
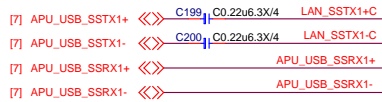


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```
5V@1A
VR Sloution U2 redriver
```

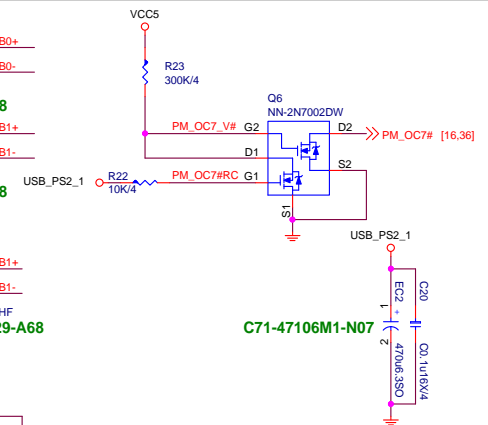
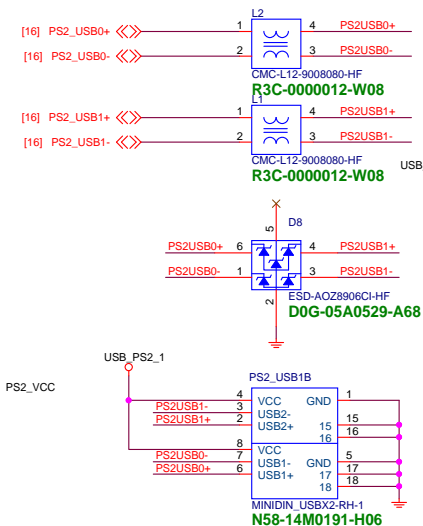
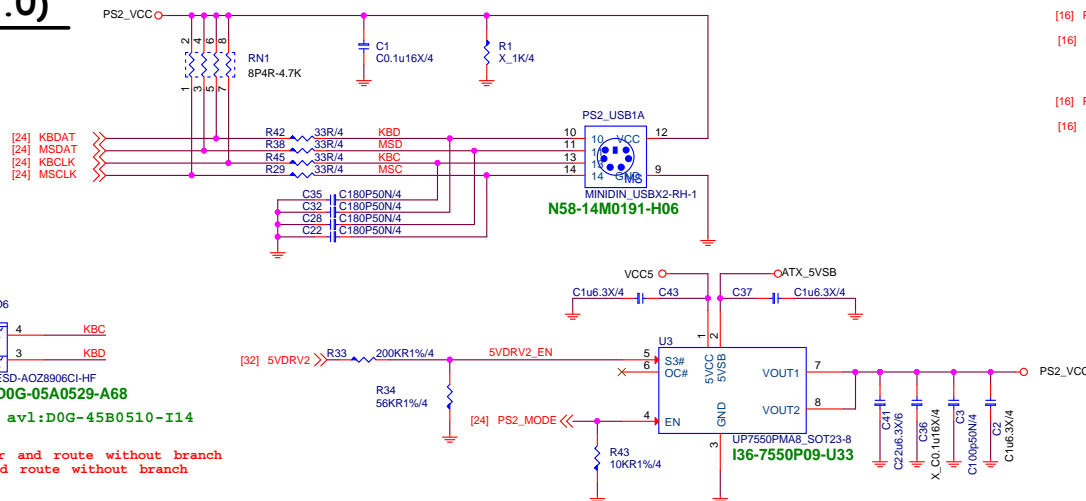
VR Sloution U2 redriver



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## 5V@1A

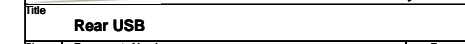
5V@1A



```

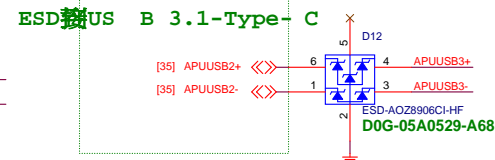
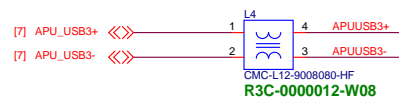
layout note:
C21 must close to TVS pin5
TVS must near KB_MS1 connector and route without branch
Varistor must close to TVS and route without branch

```

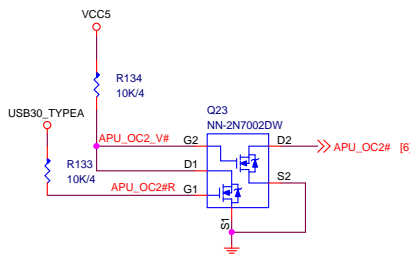
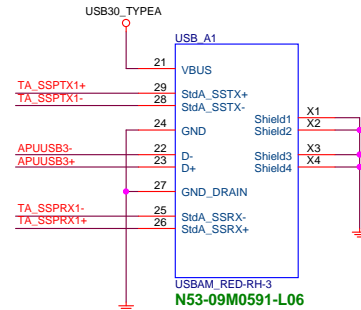
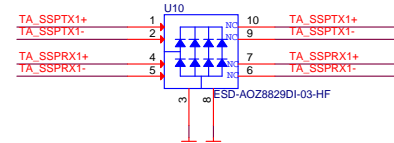
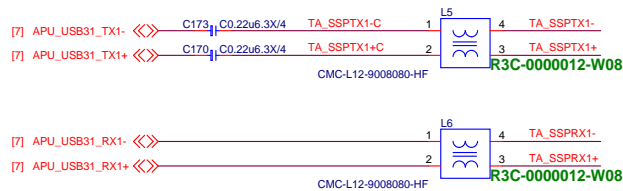


# TYPE-A (USB3.1)

5V@0.9A



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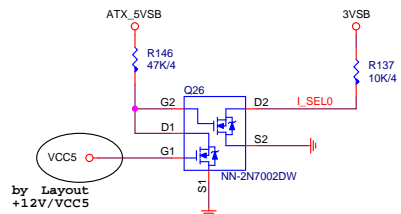




# USB 3.1-Type-C

5V@3A

## Current Mode

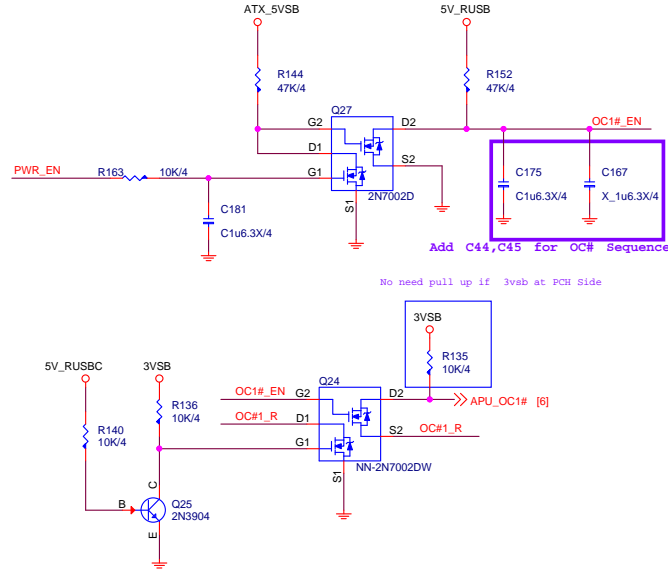


by Layout +12V/VCC5

I_SELO : I_SEL1	
X 0	Default for 900mA
U 1	1.5A @5V
1 1	3A @5V

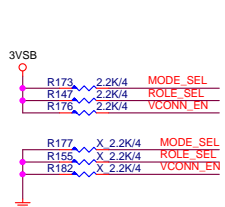
1.5A under S3 mode  
3A under S0 mode

## VBUS OC#



No need pull up if 3vsub at PCH Side

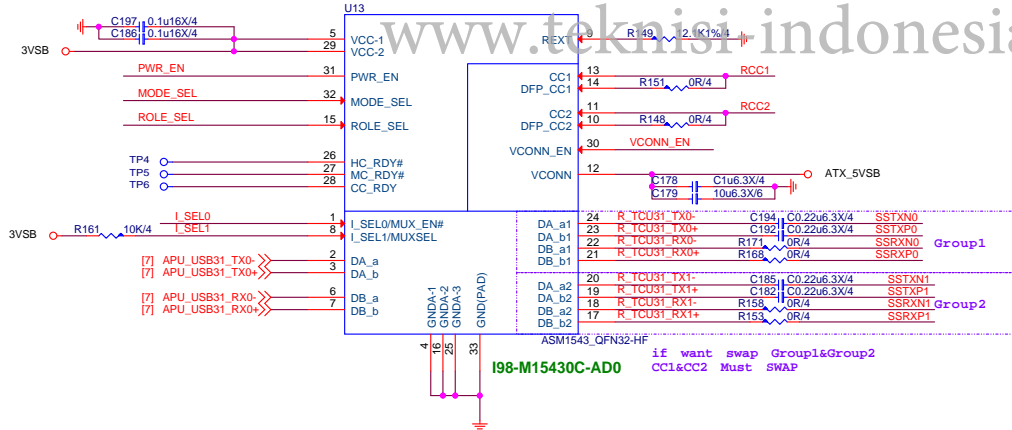
## ASM1543 MUX



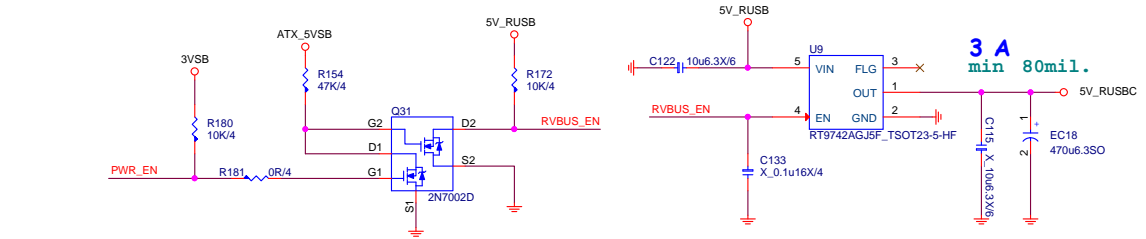
MODE_SEL	
1	CCL MODE (default)
0	Mux MODE

ROLE_SEL	
1	DFP role (default)
0	UFP role

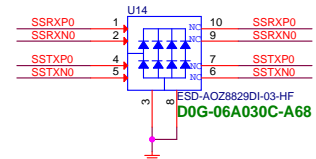
VCONN_EN	
1	enable
0	disable



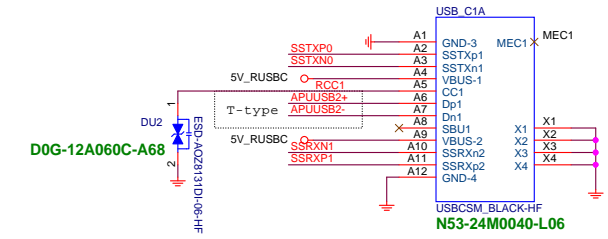
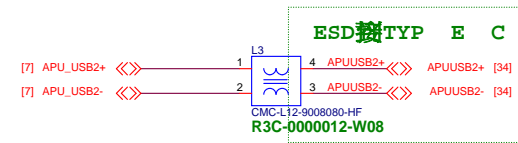
www.teknisi-indonesia.com



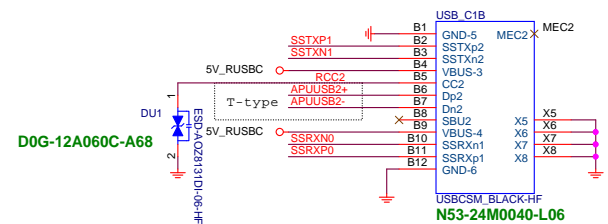
3 A min 80mil.



ESD-AOZ8829DI-03-HF  
D0G-06A030C-A68



D0G-12A060C-A68



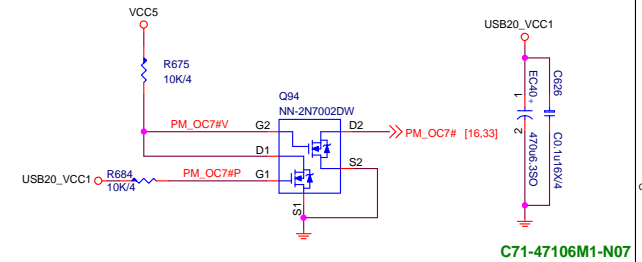
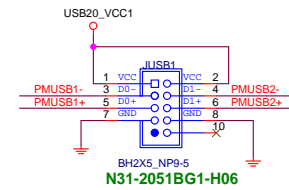
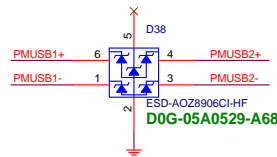
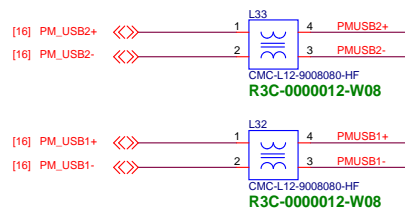
D0G-12A060C-A68

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USB3.1 TYPE C-Rear		
Size	Document Number	Rev
Custom	MS-7A34	20_30_05S
Date:	Tuesday, June 20, 2017	Sheet 35 of 60

## Front USB2.0(JUSB1)

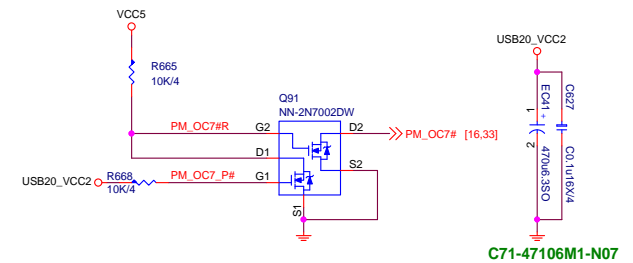
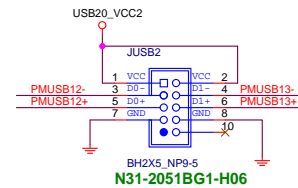
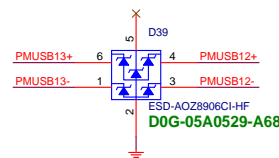
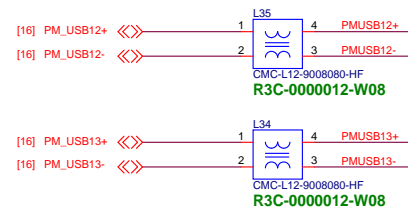
5V@1A



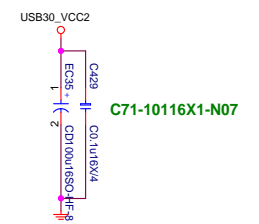
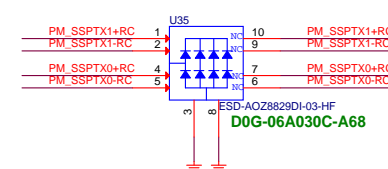
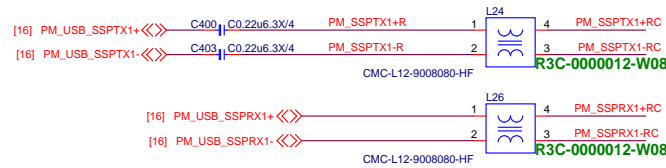
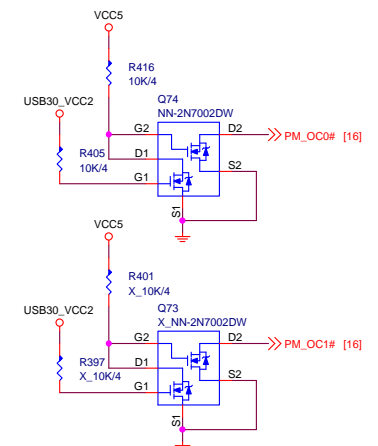
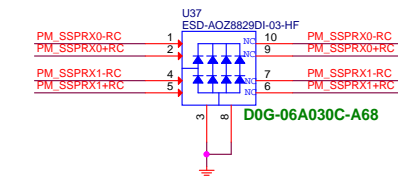
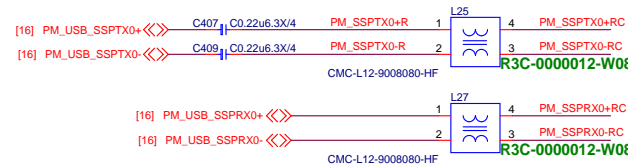
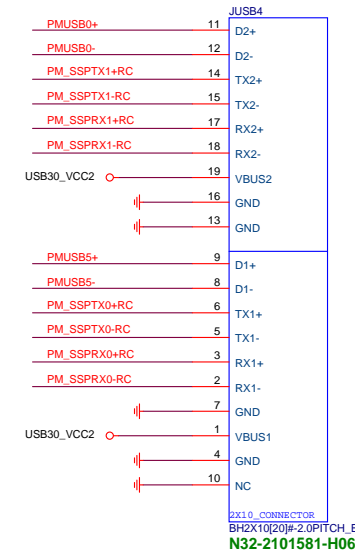
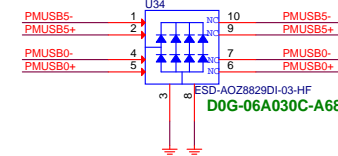
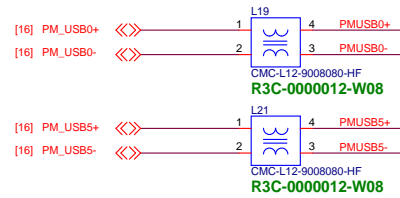
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## Front USB2.0(JUSB2)

5V@1A



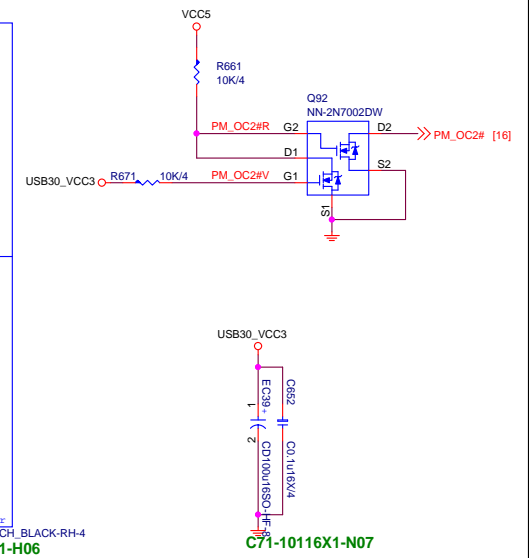
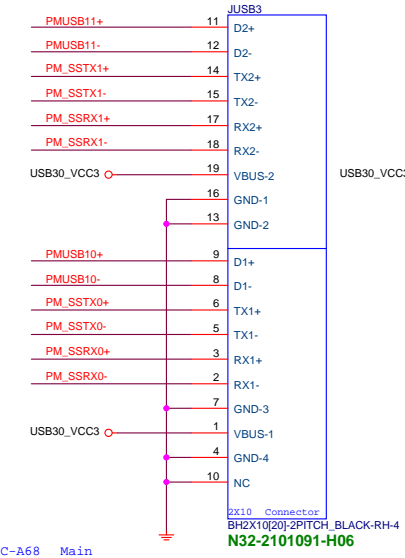
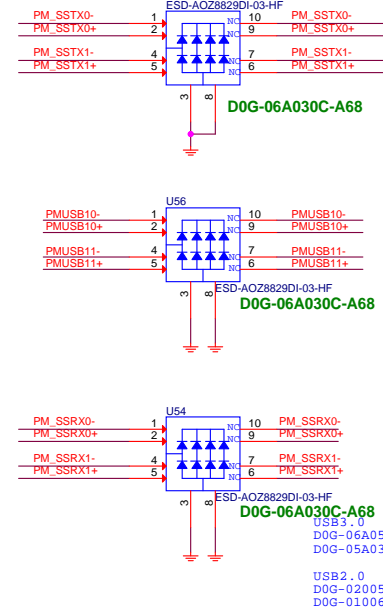
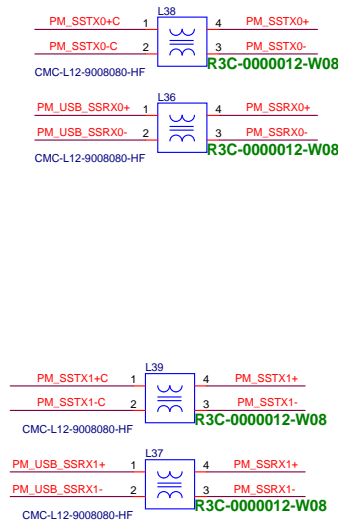
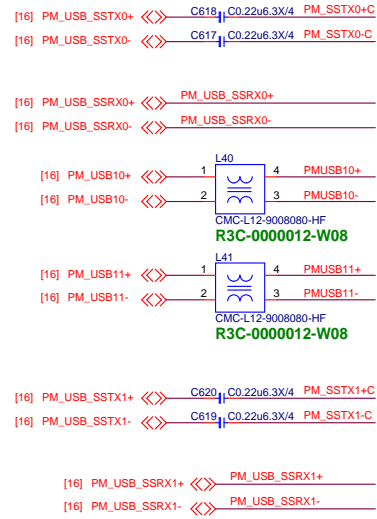
**Front USB3 90° BOX Header(J USB4)**  
**5V@1.8A**



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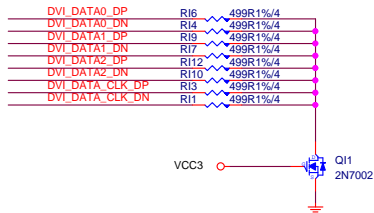
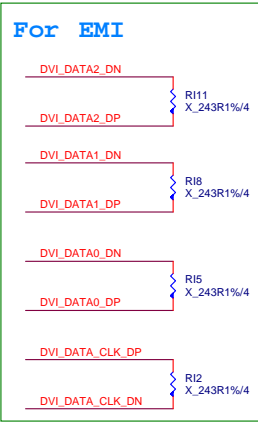
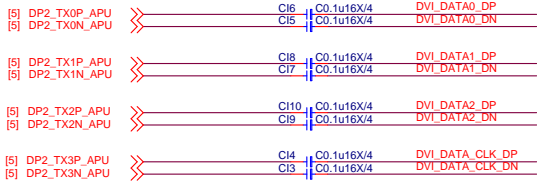
# Front USB3 180° BOX Header( J USB3)

5V@1.8A

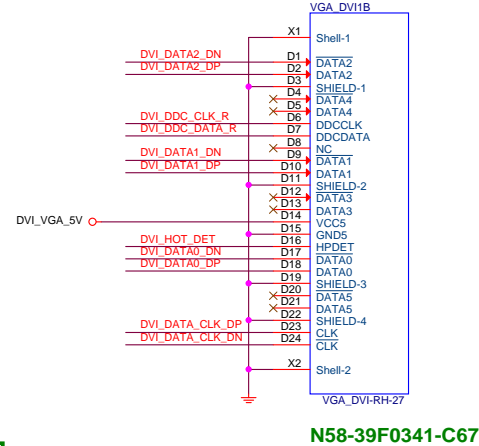
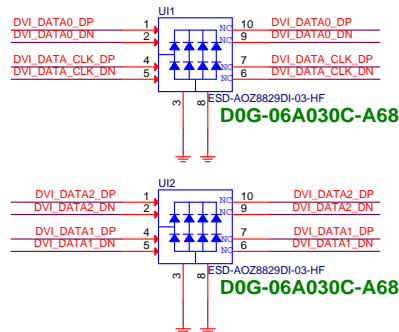
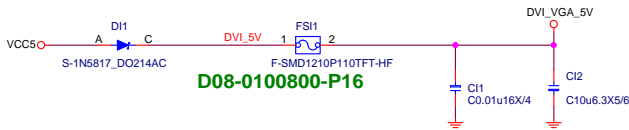
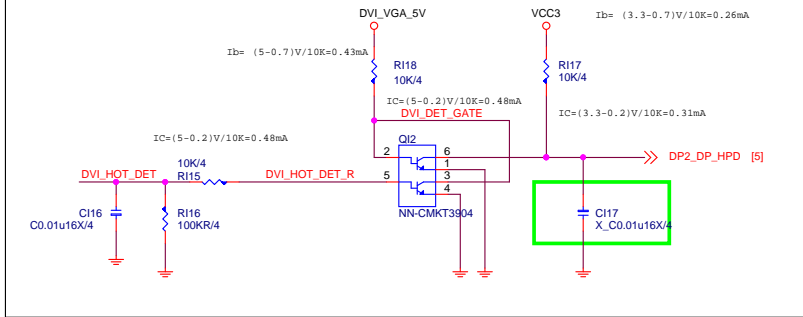


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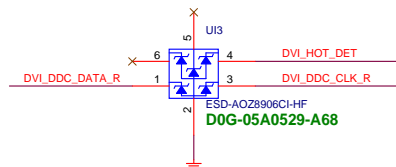
DVI CONNECTOR



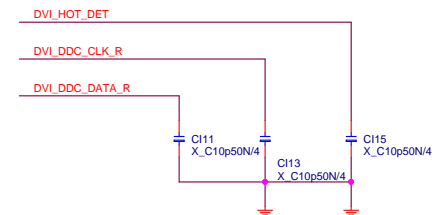
HPD



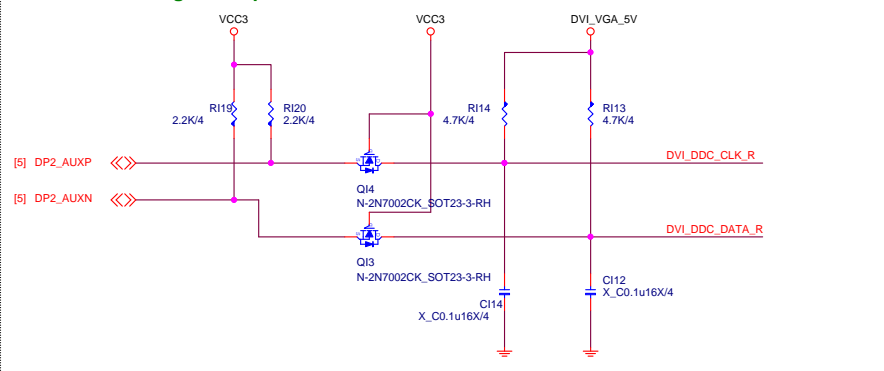
注意耐压零件



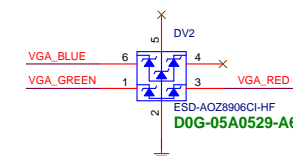
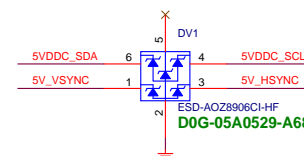
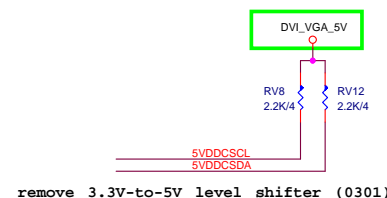
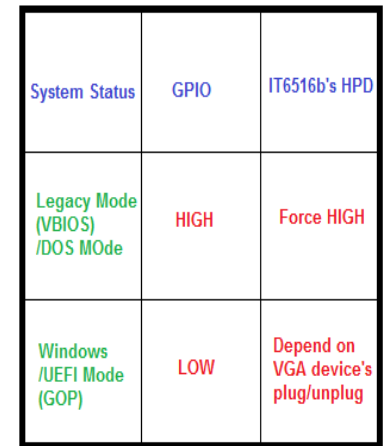
For EMI



LEVEL SHIFT using I2C Repeater



If connect to eDP port,must confirm whether it support hot plug detection HPD and re-auxtraining



```
remove 3.3V-to-5V level shifter (0301)
```

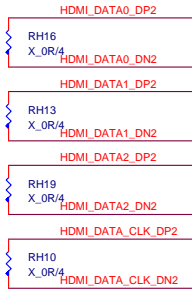
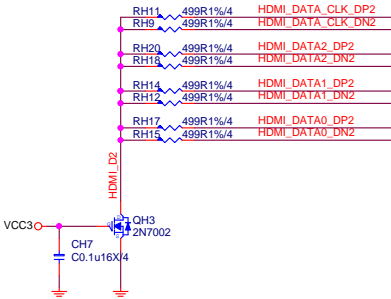
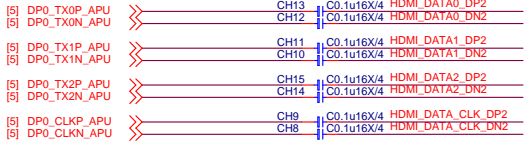
100 ohm change to 22 ohm (0301)

Vendor suggest 22ohm for better I2C quality

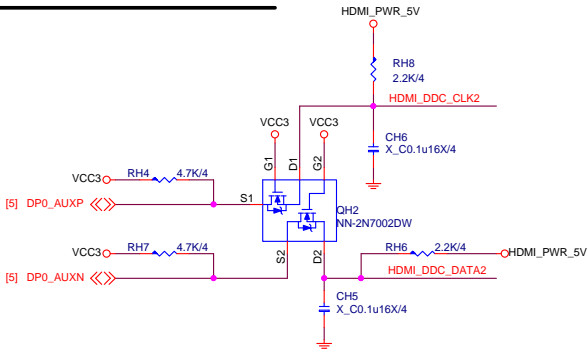


HDMI CONNECTOR

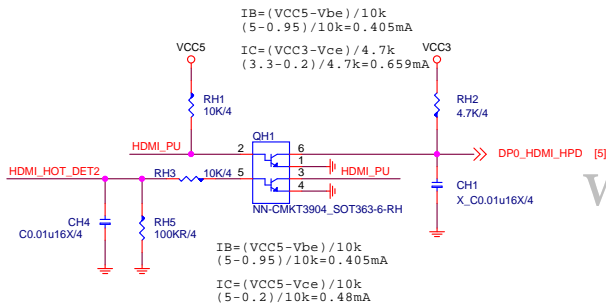
For HDMI 1.4



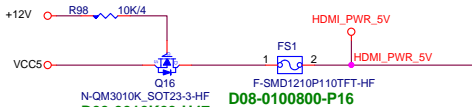
AUX Level Shifter



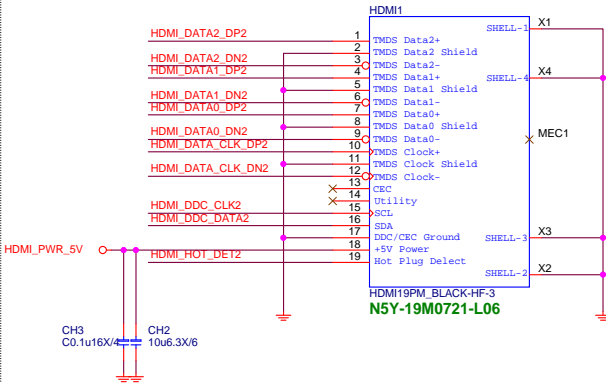
HPD Circuit



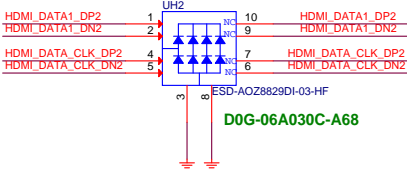
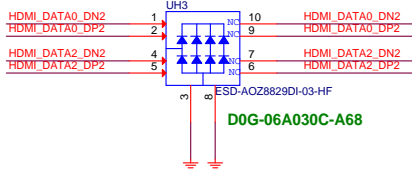
Connector Power



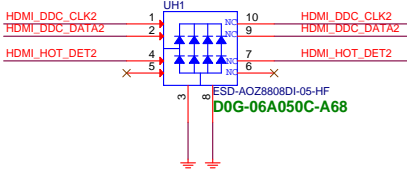
Connector



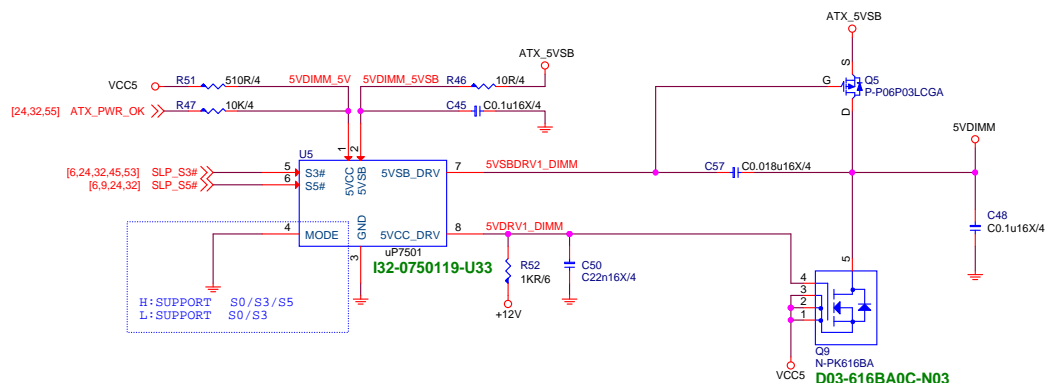
For EMI



注意耐壓零件



## 5VDIMM FOR DDR



### 3VSB cost down

3.3V@2.63A

1.05V@0.05A

VDDBT\_RTC G@4.5uA

FCH@0.07A

CPU@0.25A

PCI @0.75A

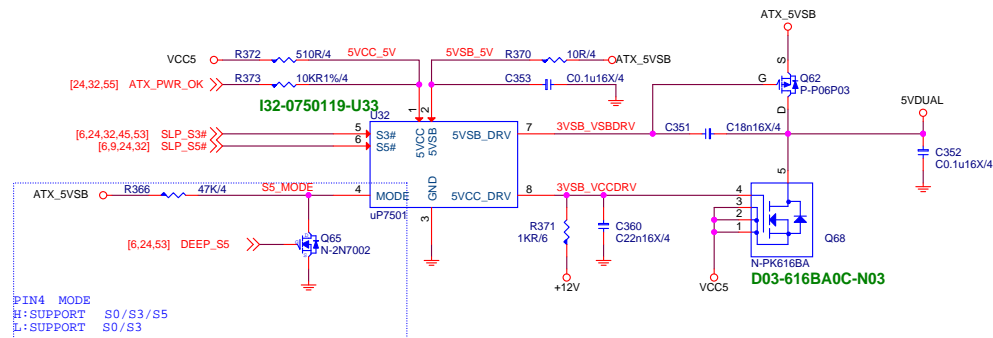
PCI-E\*4 @1.5A

USB TYPE-C @0.9mA

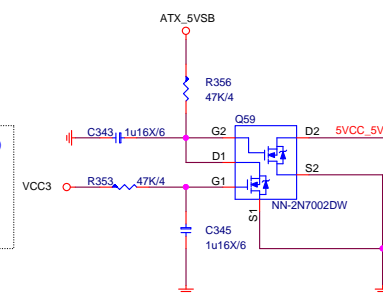


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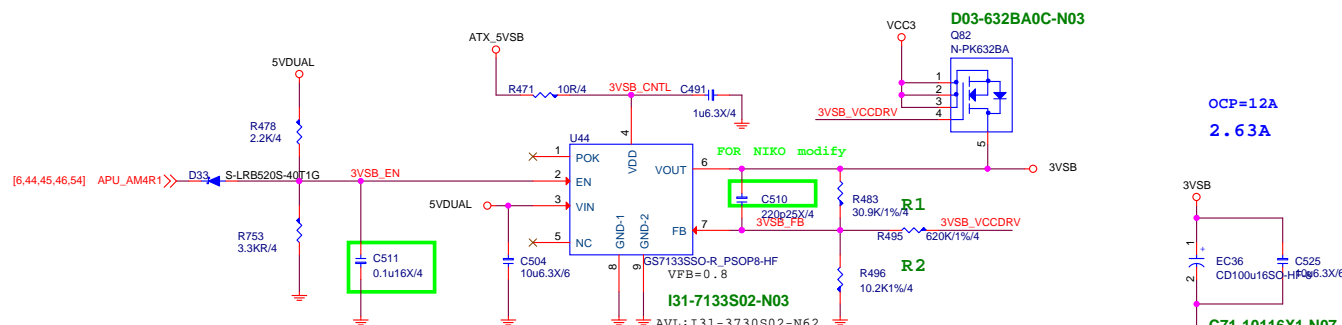
**5VDUAL For 3VSB CPU 1.8V VDD**



For power 700W solution (only for uP7501+uP7506 for 3VSB solution)  
The power supply VCC3 delay 12ms after VCC5 assert.  
The chip U7501 5VDRV1 work when the VCC5 ready  
(When VCC5 up to 4.2V and the 5VDRV1 delay 6ms assert), but  
VCC3 not ready and let the 3VSB sequence fail.



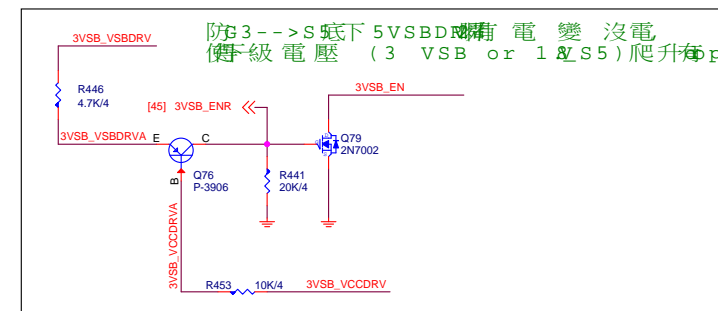
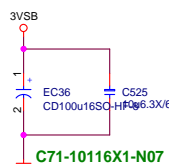
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VFB=3.224V for S0->S3 3VSB voltage raise & ATX\_5VSB drop.

$$\begin{aligned} V_{out} &= V_{ref} * (1 + (R1/R2)) \\ &= 0.8 * (1 + (30.9K/10.2K)) \\ &= 3.22V \end{aligned}$$

OCP=12A  
2.63A

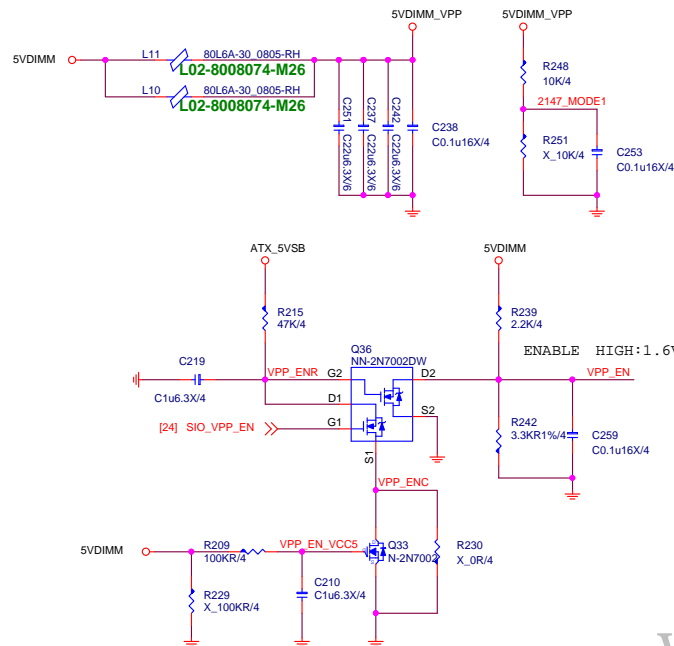


**MICRO-START INT'L CO.,LTD.**

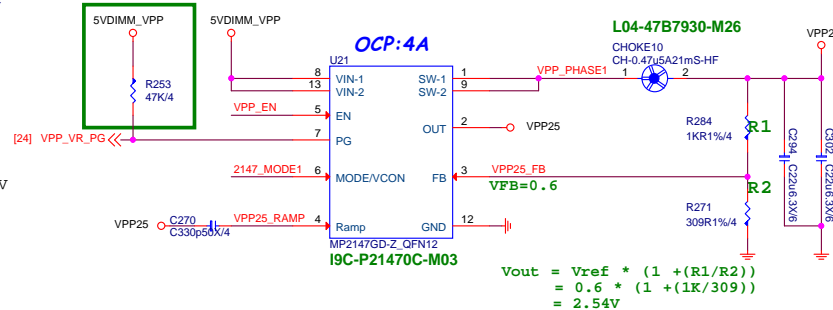
Title			
ACPI uPI-5VDIMM&3VSB			
Size	Document Number	Rev	
Custom	MS-7A34	20_30	
Date:	Tuesday, June 20, 2017	Sheet	42 of 60

# 4DIMM : VPP25

## 2.5V@2.24A



Input Current =  $(2.5 \times 2.24) / 5 / 0.8 = 1.4A$



$$V_{out} = V_{ref} * (1 + (R1/R2))$$

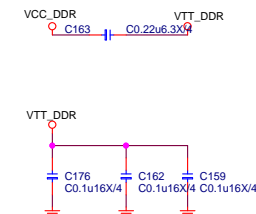
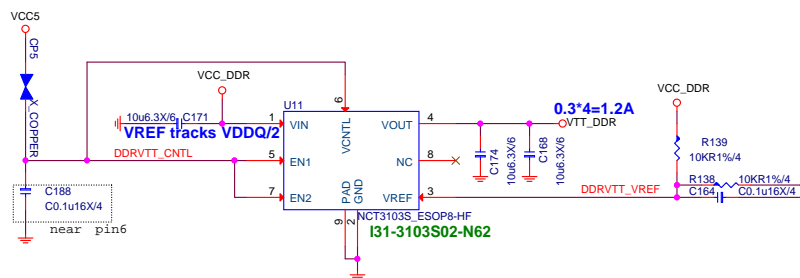
$$= 0.6 * (1 + (1K/309))$$

$$= 2.54V$$

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### DDR VTT Power

To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .



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Title  
DDR PWR VPP25/VTT-MP2147

Size  
Custom  
Document Number  
MS-7A34  
Rev  
20\_30\_05S

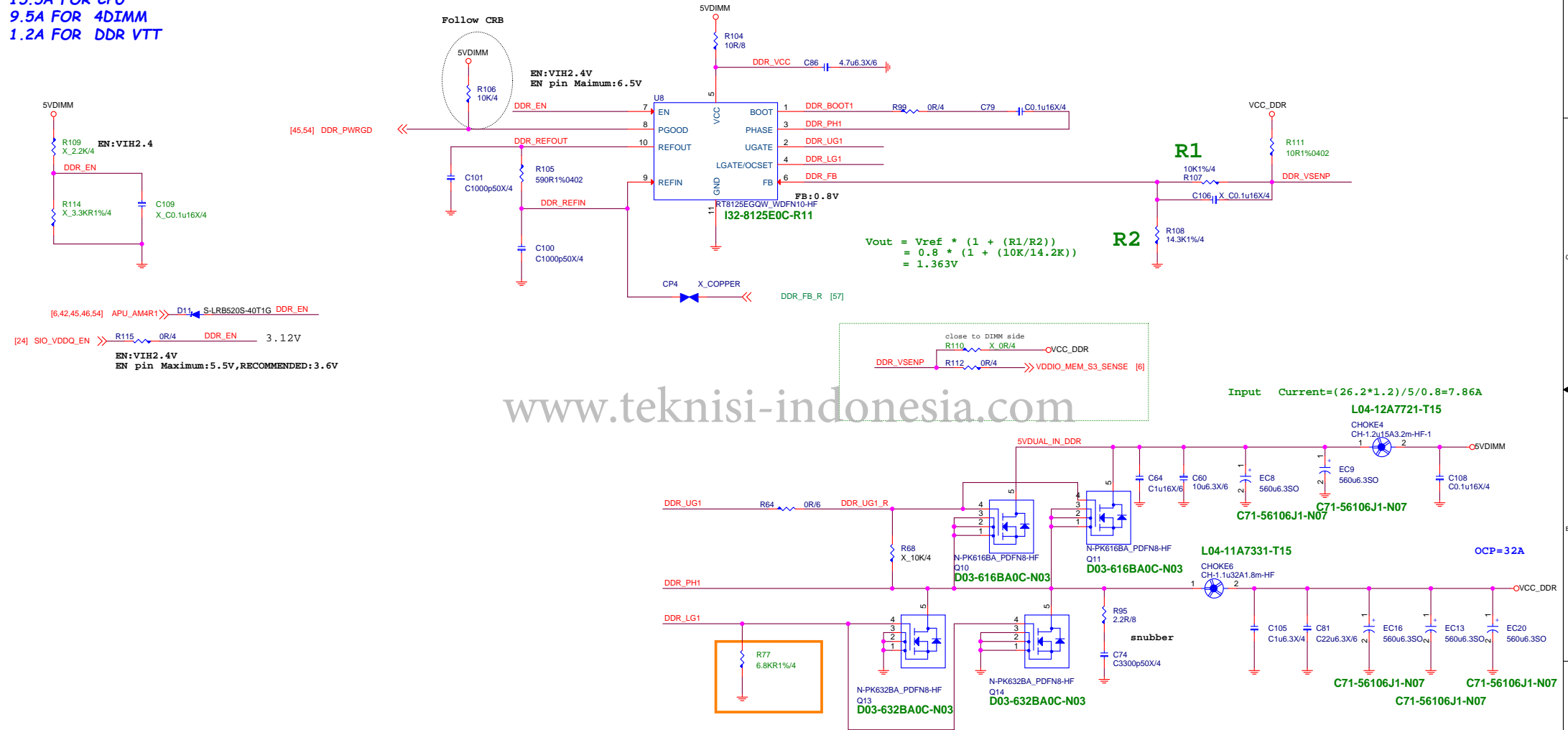
Date: Tuesday, June 20, 2017  
Sheet 43 of 60

# DDR4\_1.2V@26.2A

15.5A FOR CPU

9.5A FOR 4DIMM

1.2A FOR DDR VTT

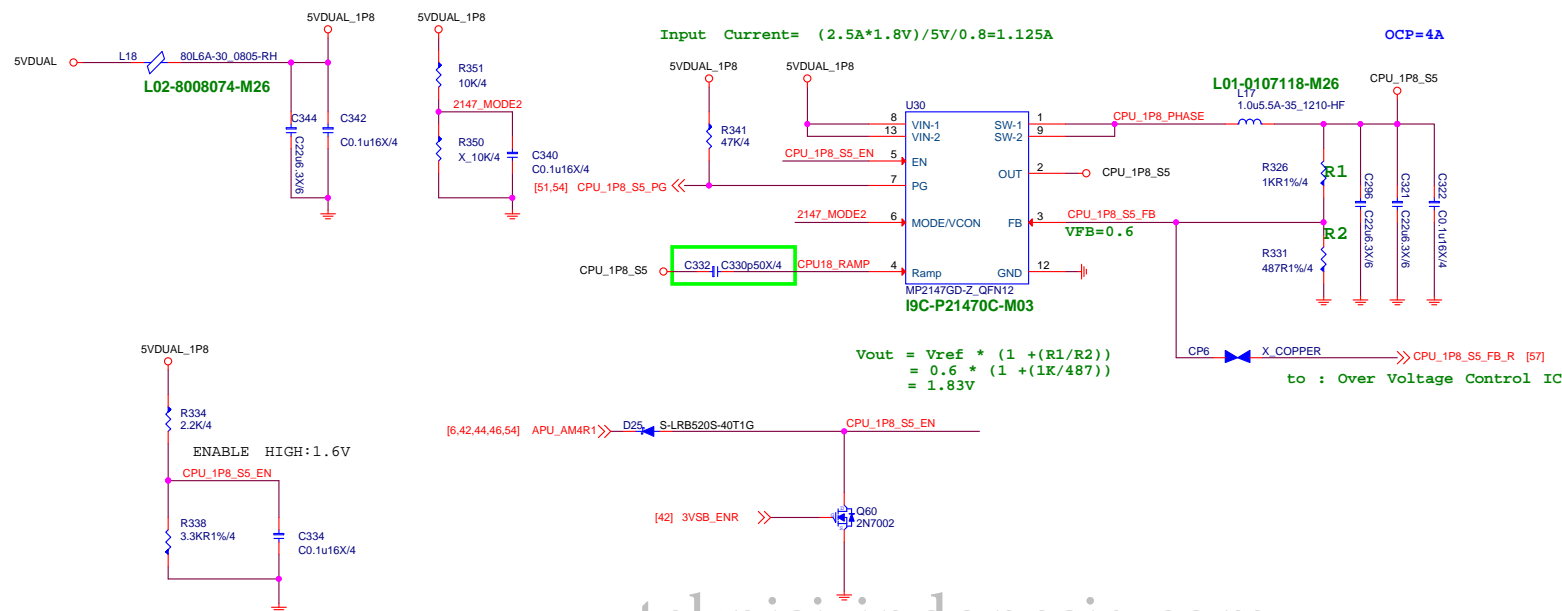


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## CPU 1.8V S5 @2.5A

1.8V S5@0.5A

1.8V S0@2A

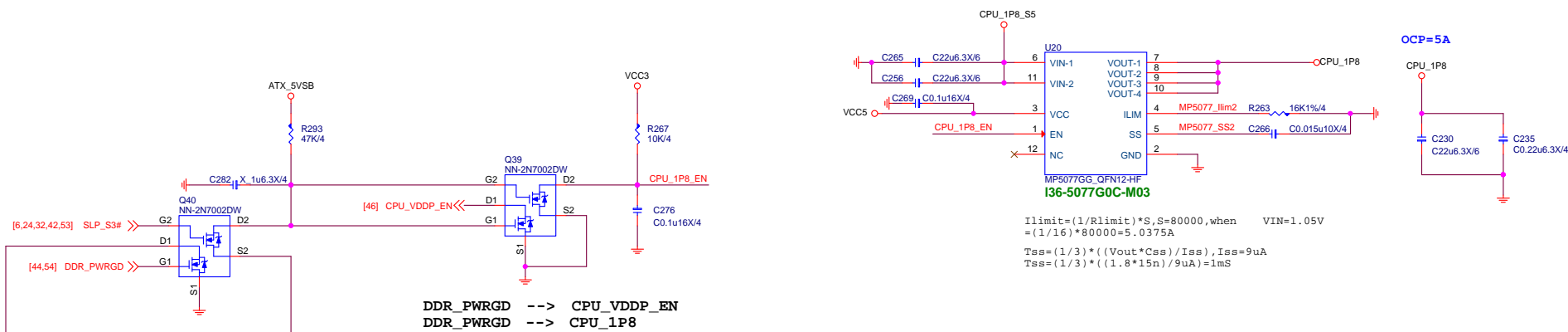


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## CPU 1.8V S0

1.8V@2A + 0.9A(VCCP\_NB\_S5) = 2.9A

FOR VCCP\_SOC@0.9A



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Title  
CPU Power 1P8V-MP2147

Size Custom  
Document Number  
MS-7A34

Date: Tuesday, June 20, 2017  
Sheet 45 of 60

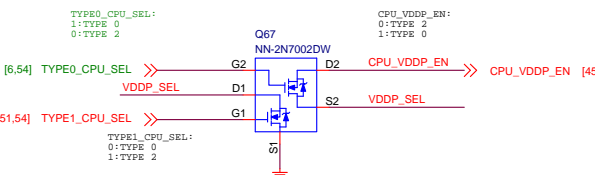
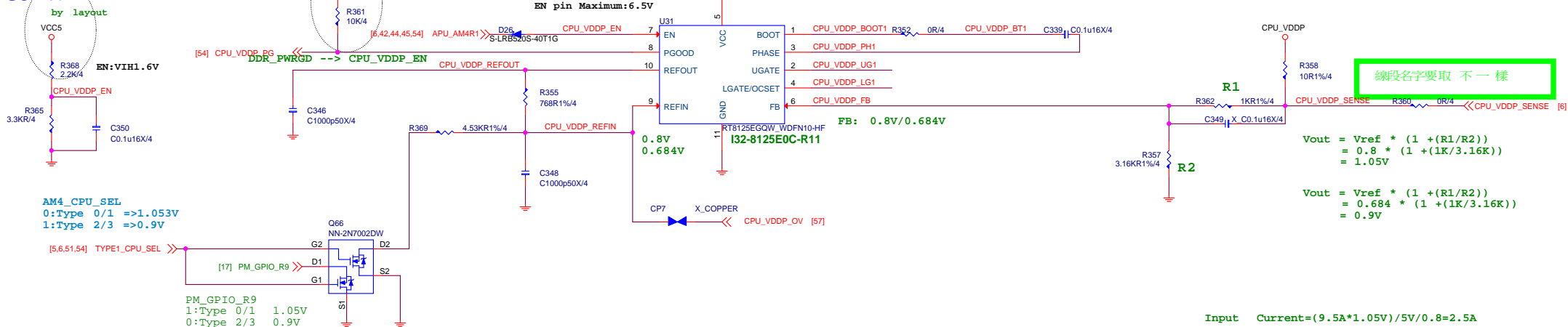
Rev  
20\_30\_05S

# CPU\_VDDP\_S0

1.05V/0.9V@S0:8.5A

S0:8.5A  
S5:1A

OCP=12A

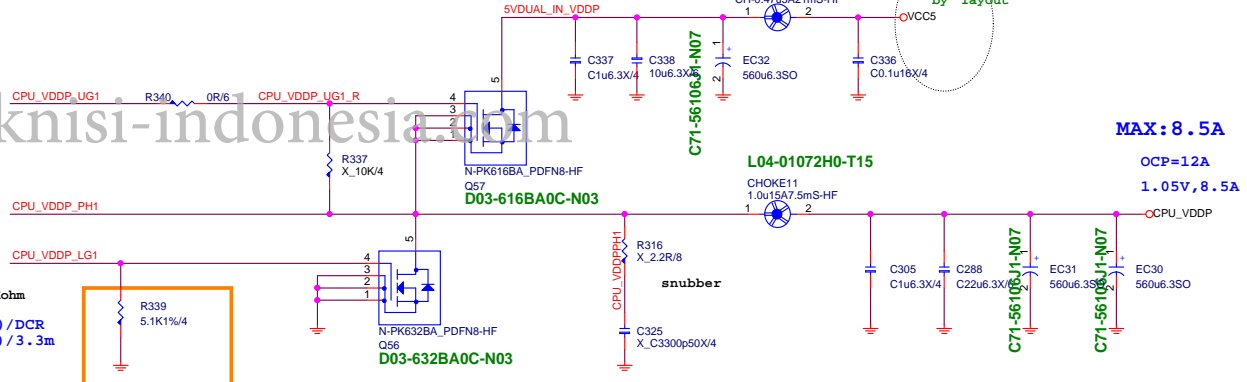


CPU	TYPE	TYPE0_CPU_SEL	TYPE1_CPU_SEL	CPU_VDDP_EN
BR	0	1	0	1
NA		0	0	0
SR	2	1		
RV/ZP	3	0	1	1

CPU\_VDDP NOT SUPPORT TYPE2

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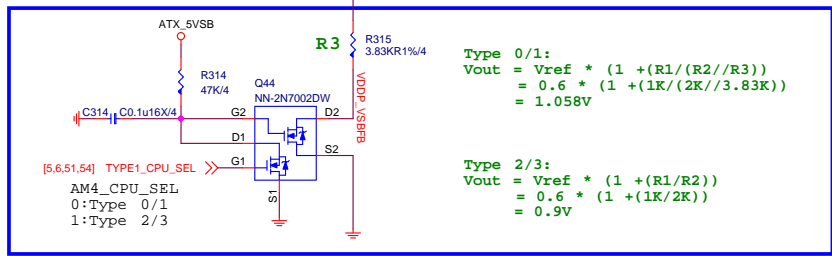
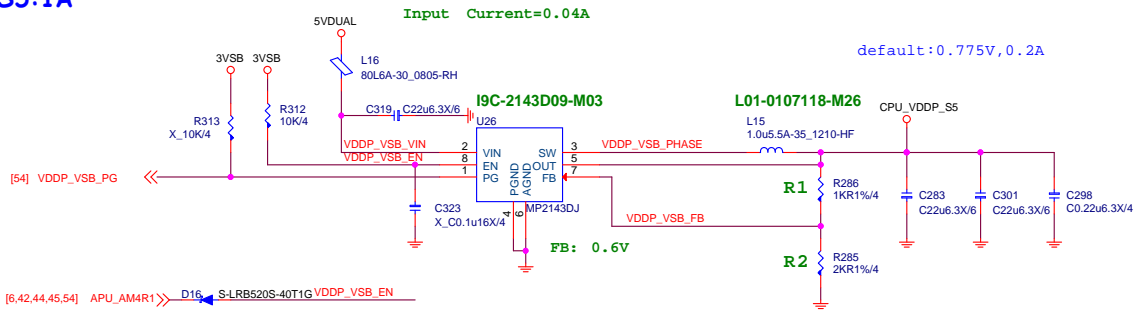
OCPSET:min 5Kohm  
OCP  
= (R475\*10uA)/DCR  
= (5.1k\*10uA)/3.3m  
= 15.45A



# CPU\_VDDP\_S5

1.05V/0.9V  
S5:1A

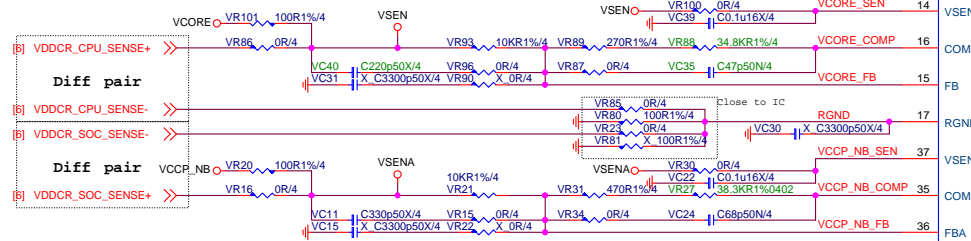
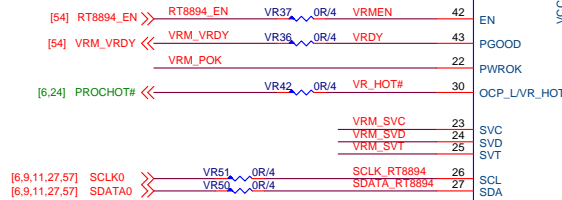
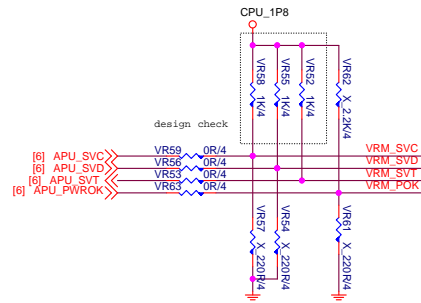
(VDDCR\_SOC\_S5 is only used for AMD TYPE0)



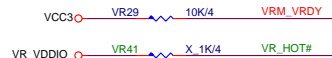


Note:VID Override Circuit

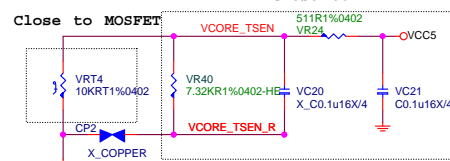
SVC	SVD	BOOT VOLTAGE
0	0	1.1
0	1	1.0
1	0	0.9
1	1	0.8



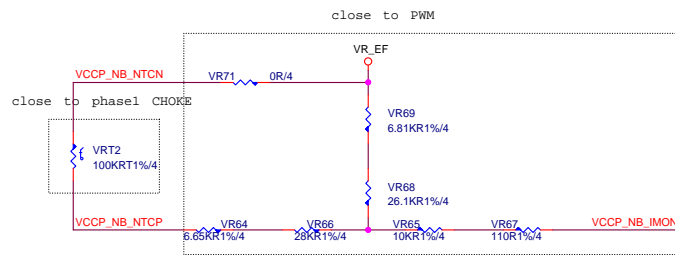
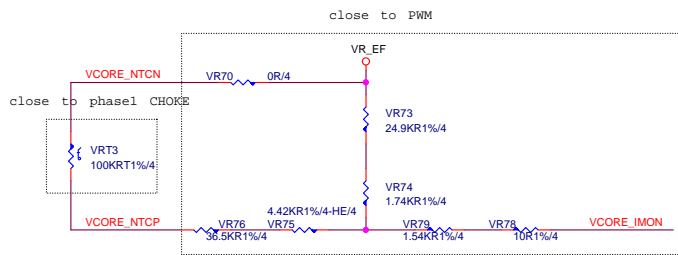
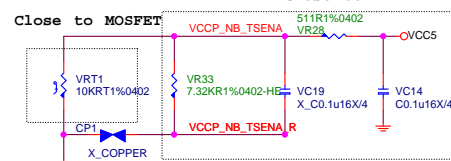
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Vcore 1.2V 發壓度恢復



NB 項 MOS 溫度會在 124 度 VR 拉 1.0V 並恢復

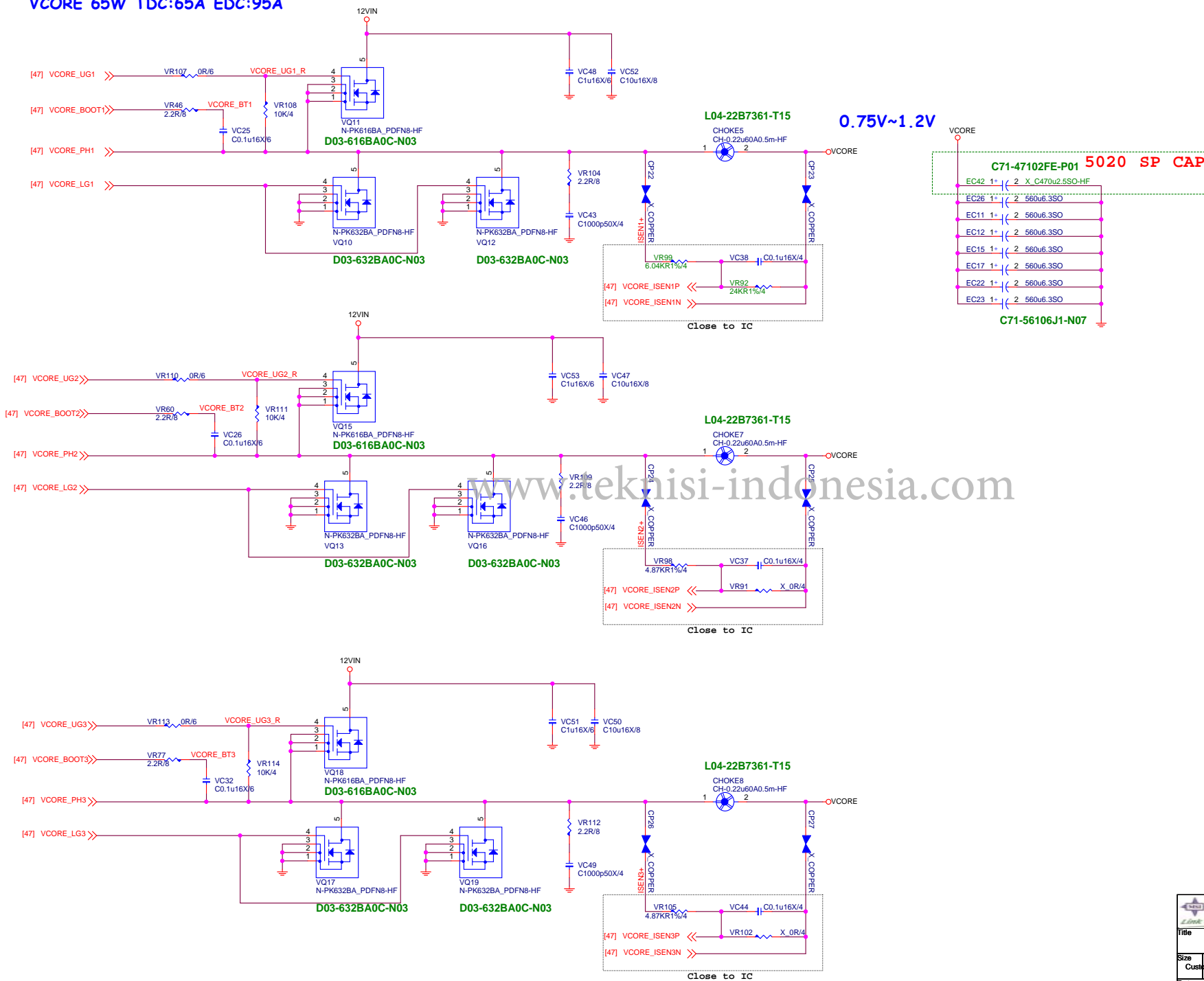


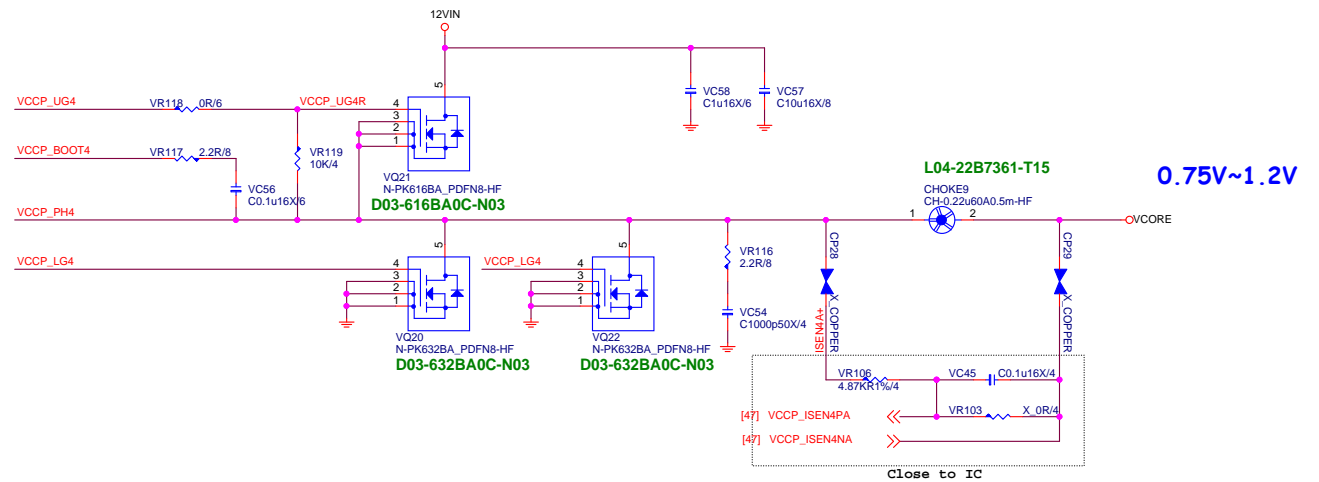
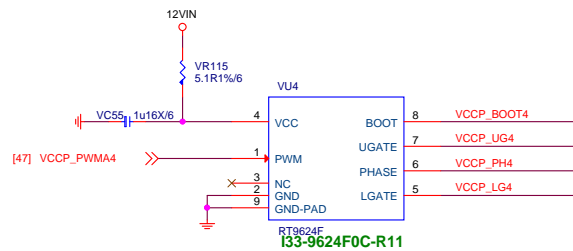
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Vcore IccMAX: 125A =>OCP=>145A  
VCC\_NB IccMAX: 75A =>OCP=> 95A

<b>MICRO-START INTL CO.,LTD.</b>		
Title <b>CPU Power RT8894 4+2</b>		
Size	Document Number	Rev
Custom	<b>MS-7A34</b>	<b>20_30_05S</b>
Date:	Tuesday, June 20, 2017	Sheet 47 of 60

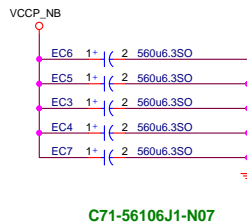
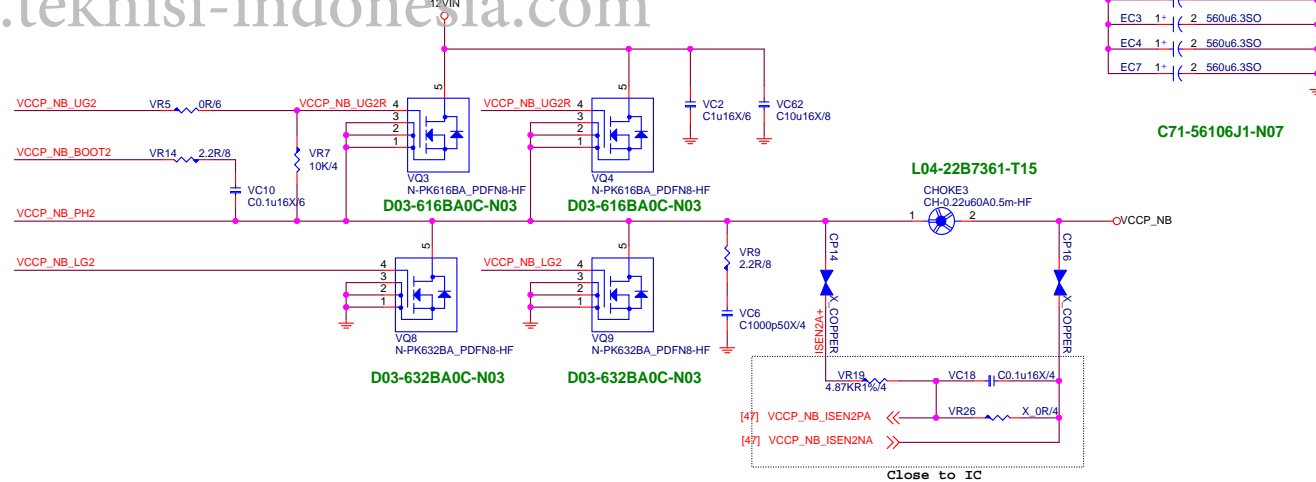
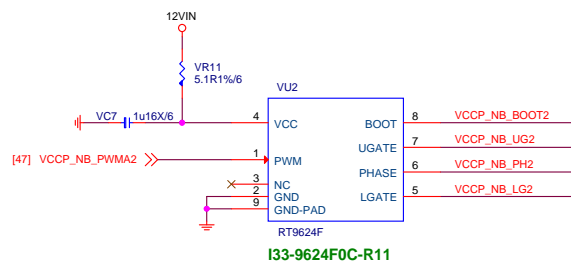
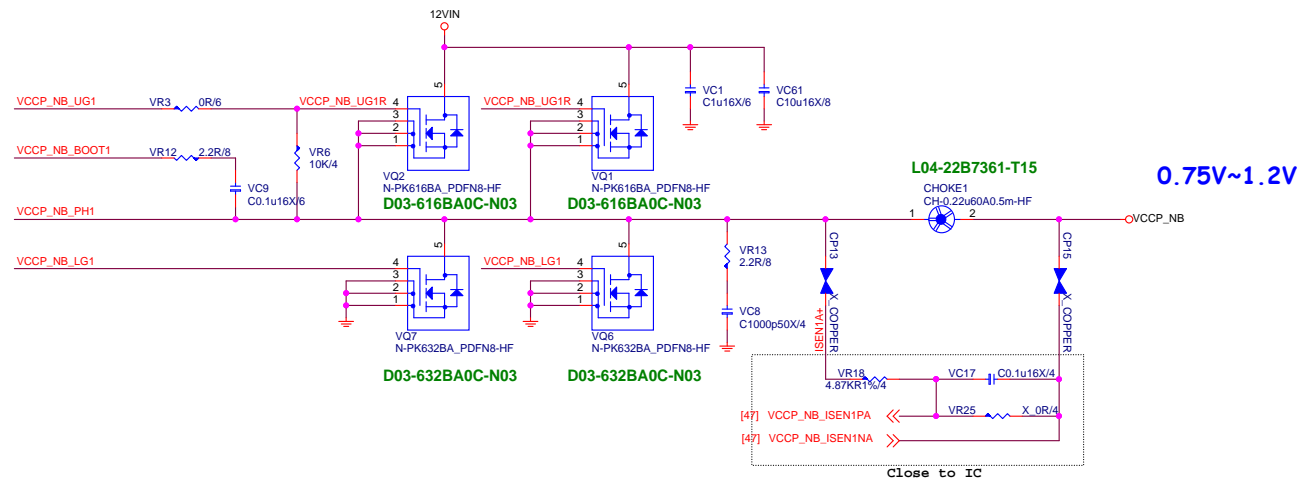
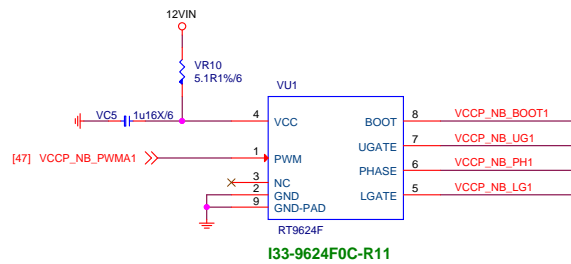
VCORE 95W TDC:80A EDC:125A  
VCORE 65W TDC:65A EDC:95A





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VCCP\_NB 95W TDC:50A EDC:75A  
VCCP\_NB 65W TDC:50A EDC:75A



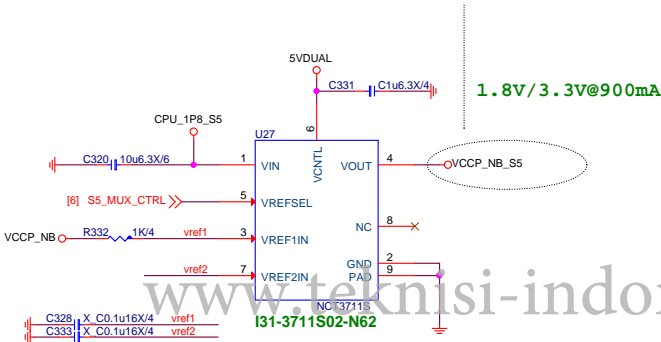
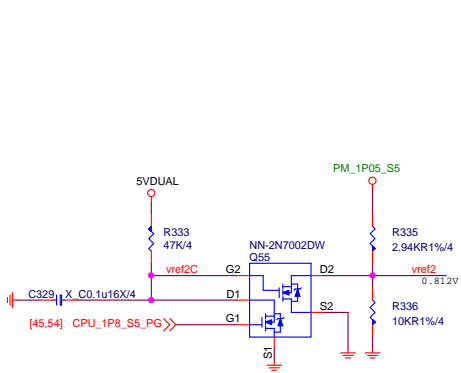
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FOR VCCP\_SOC\_S5  
0.9A

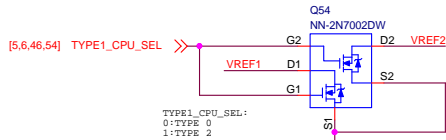
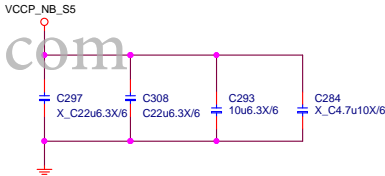
S5\_MUX\_CTRL  
HIGH:S0  
LOW: S3/S5

H: +VDDCR\_FCH\_ALW will track VDDNB  
L: If VDDCR\_SOC<0.775V (OR 0.85V),VDDCR\_SOC\_S5 =0.775V.  
If VDDCR\_SOC >= 0.775V (OR 0.85V) , VDDCR\_SOC\_S5 will track VDDCR\_NB

(VDDCR\_SOC\_S5 is only used for AMD Family 15h Models 60h-6Fh processors)



1.8V/3.3V@900mA



CPU	TYPE	TYPE1_CPU_SEL	TYPE0_CPU_SEL
BR	0	0	1
NA		0	0
SR	2	1	1
RV/ZP	3	1	0

CPU VCCP\_NB\_S5 ONLY SUPPORT TYPE0

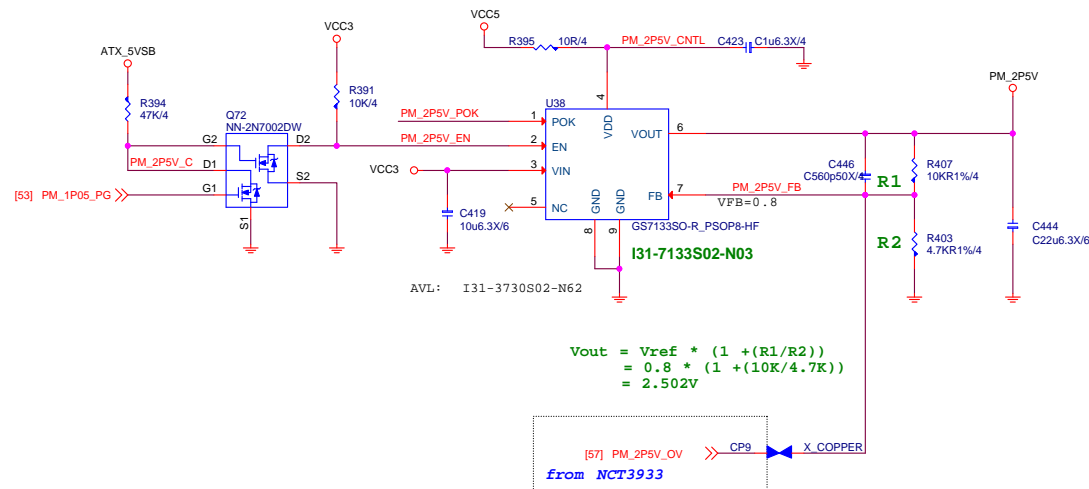
MSI  
Link to the Future  
MICRO-START INTL CO.,LTD.

Title  
CPU Power NB Switch

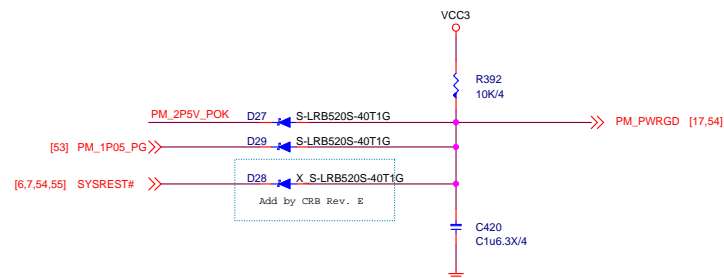
Size Document Number  
Custom MS-7A34

Date: Tuesday, June 20, 2017 Sheet 51 of 60

2.5V@900mA



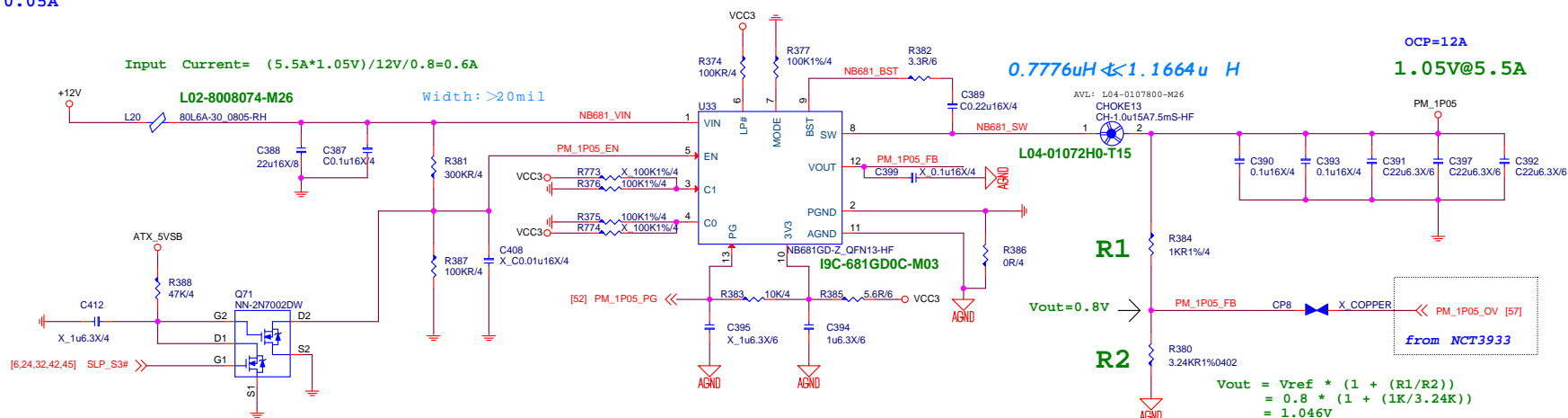
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1.05V  
S0:5.5A  
S5:0.05A

IMAX 10A  
ILIMIT=10A~12A  
IOC=ILIMIT+40%\*IMAX/2=12A~14A.

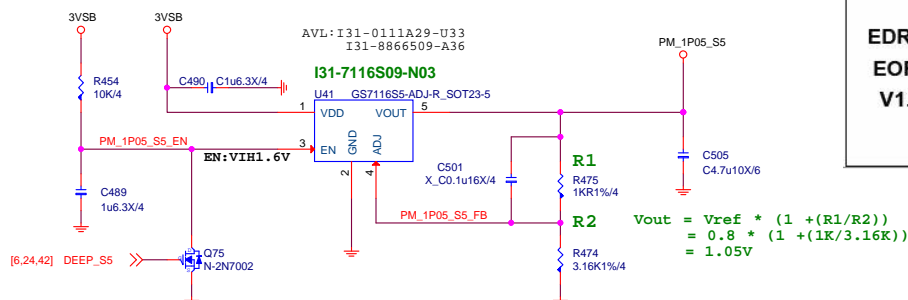


	LP#	C1	C0	VOUT(V)
VCCIO	0	X	X	0
	1	0	0	0.85
	1	0	1	0.875
	1	1	0	0.95
	1	1	1	0.975
VCCPRIM _CORE	0	X	X	0.7
	1	0	0	0.85
	1	0	1	0.9
	1	1	0	0.95
	1	1	1	1.00
EDRAM/ EOPIO/ V1.0A	0	X	X	0
	1	0	0	0.8 (MSM)
	1	0	1	0.95
	1	1	0	1
	1	1	1	1.05

MODE	VR Rail	Resistor to GND (1% accuracy)
M1	VCCIO	0
M2	PRIMCORE	Float or > 230 K
M3	EDRAM/V1.0A/EOPIO	100 K
M4	Others	150 K



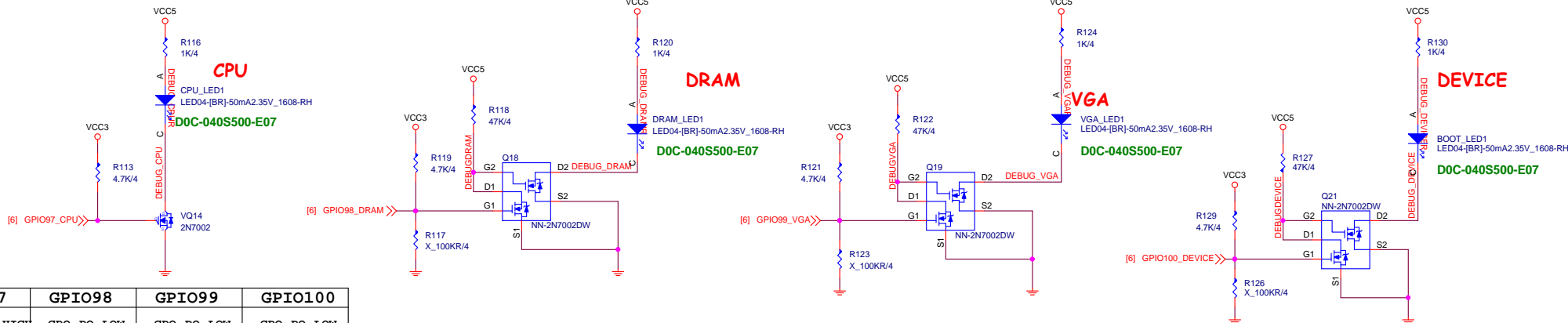
**1.05V@0.05A**





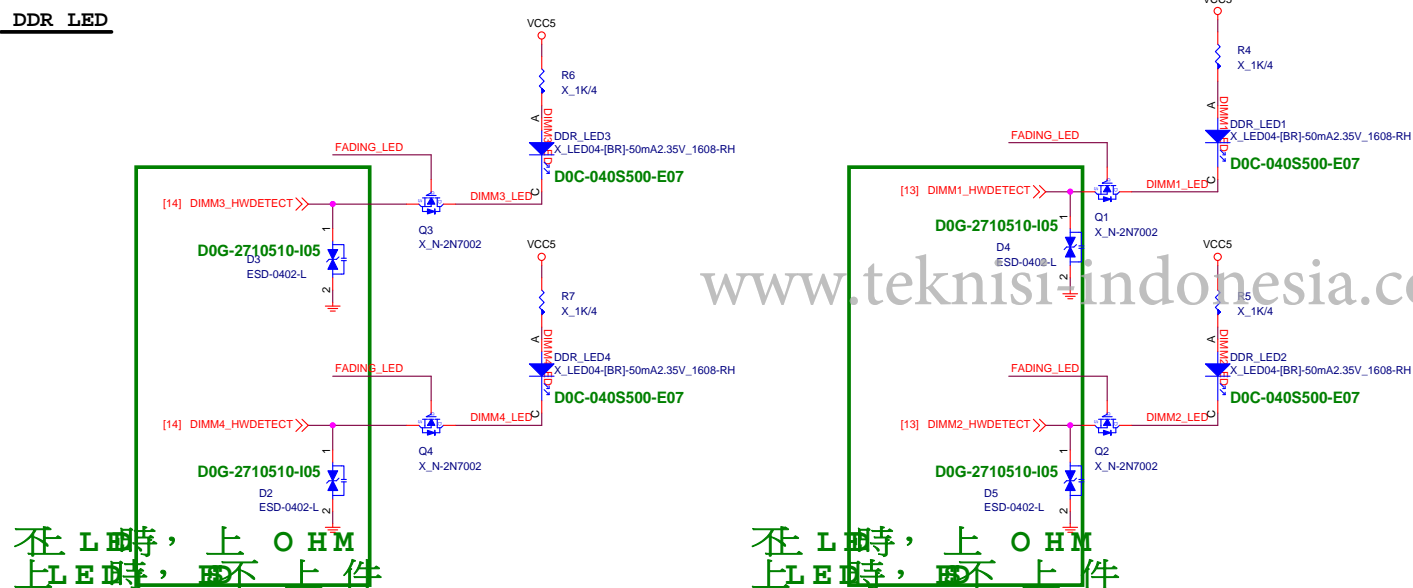


## Debug LED

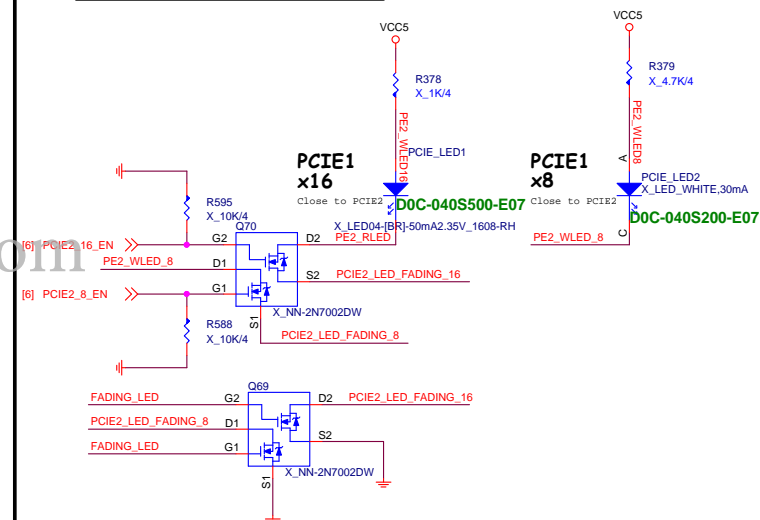


GPIO	GPIO97	GPIO98	GPIO99	GPIO100
亮	GPI PULL HIGH	GPO PO LOW	GPO PO LOW	GPO PO LOW
滅	GPO LOW	GPO HIGH (default HIGH)	GPO HIGH (default HIGH)	GPO HIGH (default HIGH)

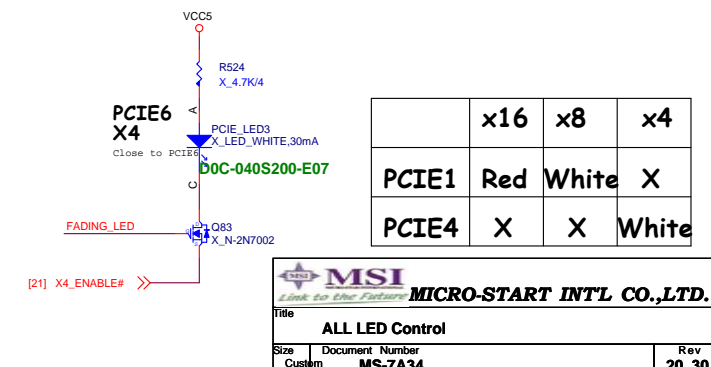
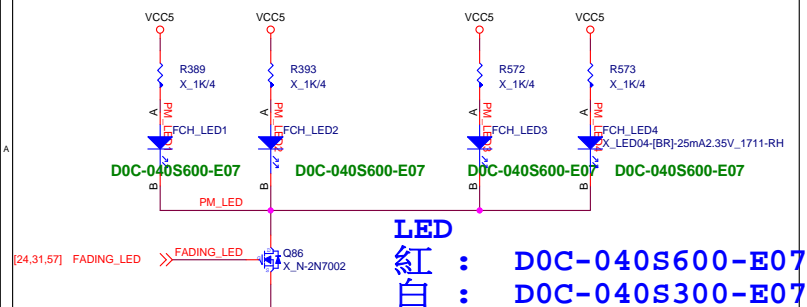
## DDR LED



## PCI Express LED Control



## FCH LED Place under Heat-sink

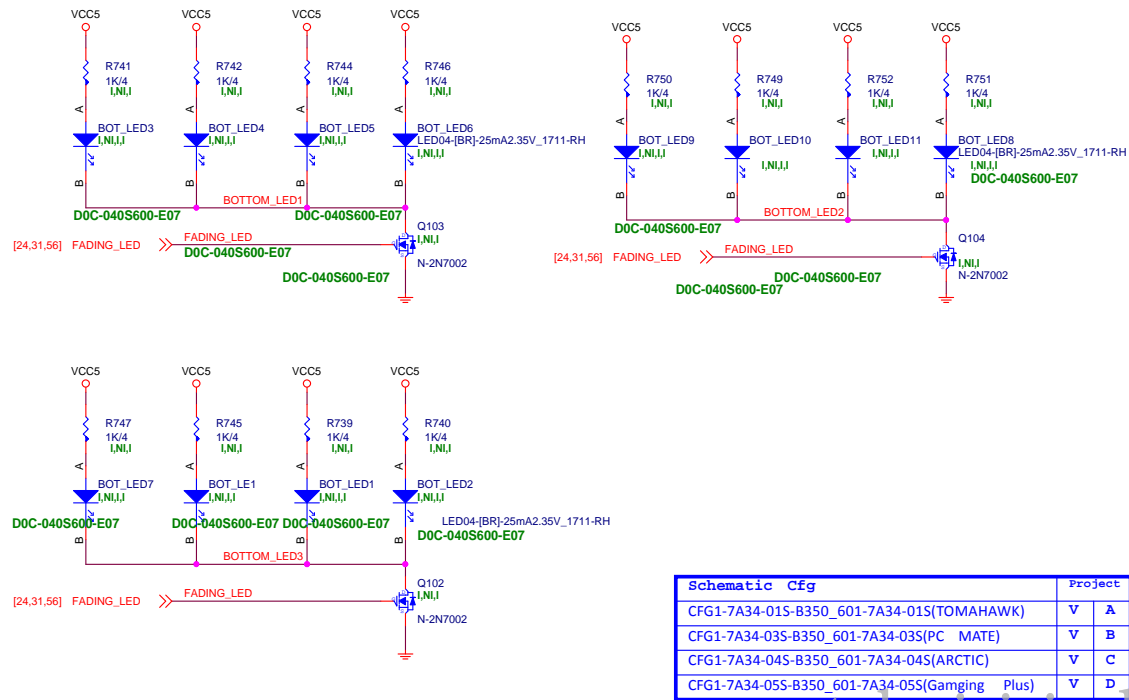


	x16	x8	x4
PCIE1	Red	White	X
PCIE4	X	X	White

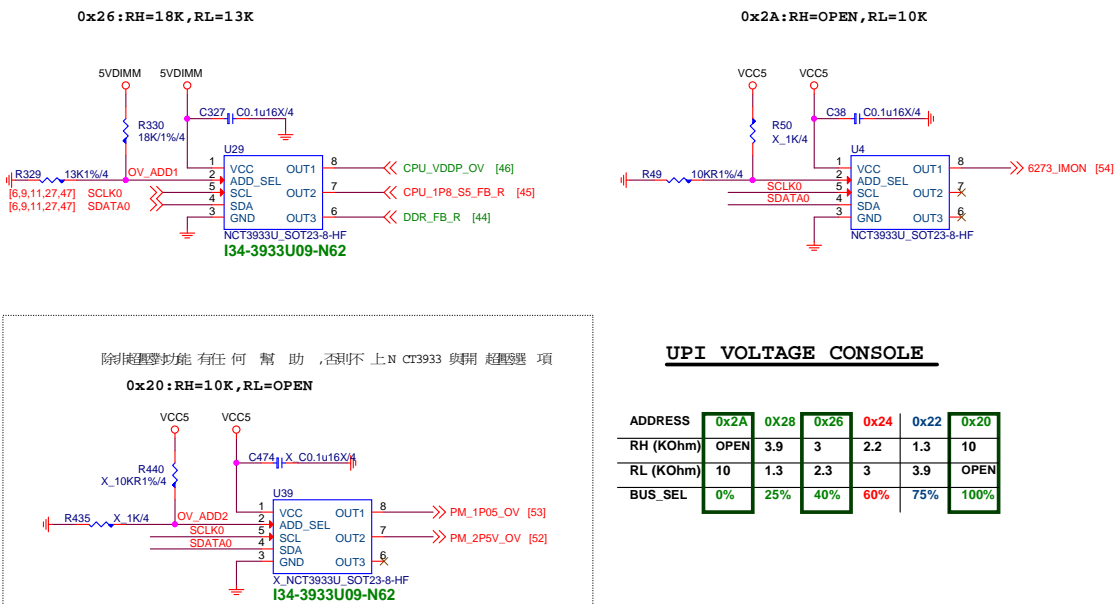
MSI  
Link to the Future  
MICRO-START INTL CO.,LTD.

Title: ALL LED Control  
Size: Custom  
Document Number: MS-7A34  
Date: Tuesday, June 20, 2017  
Sheet: 56 of 60  
Rev: 20\_30\_05S

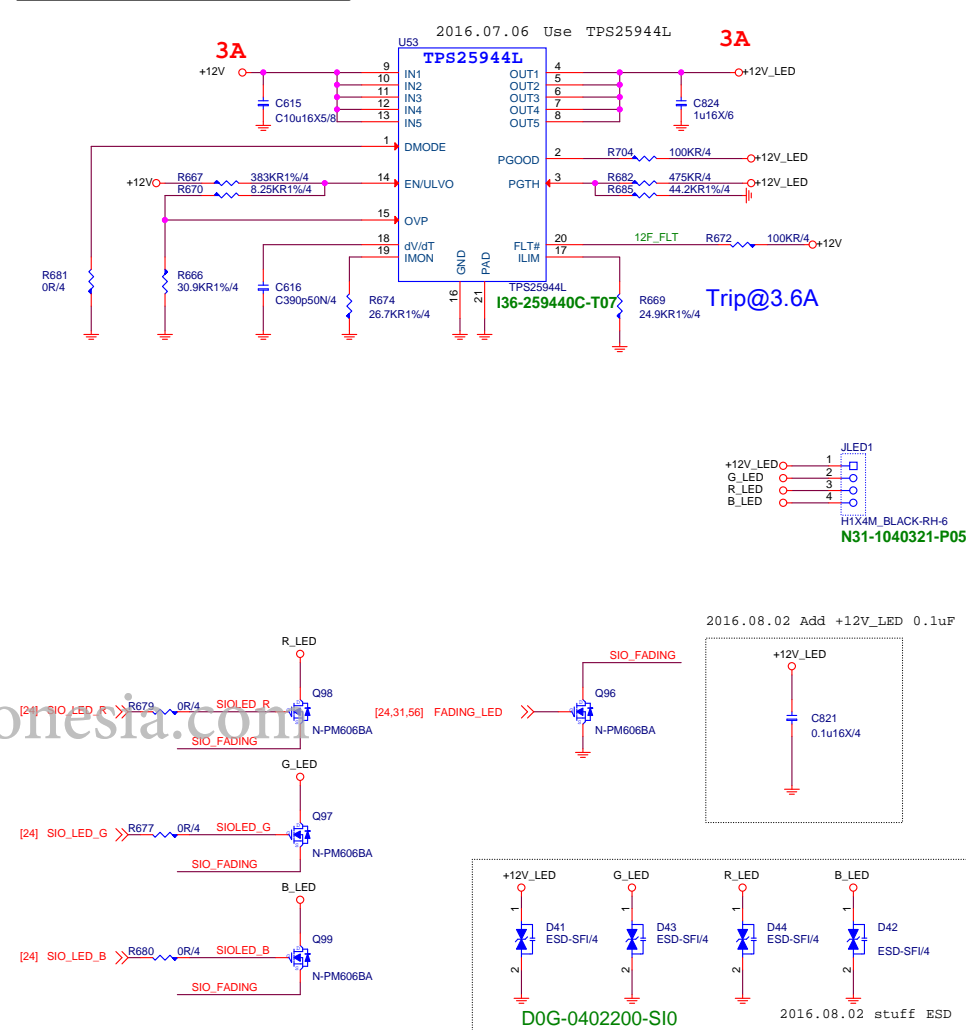
## Bottom LED Control by SIO



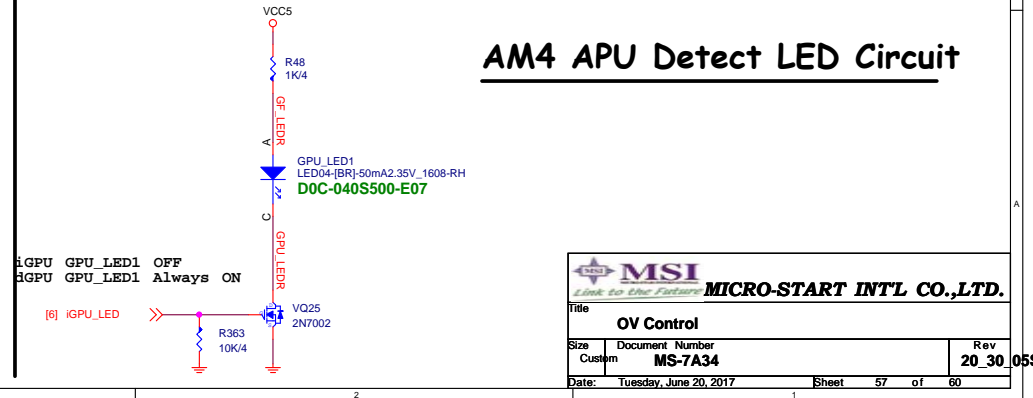
## Over Voltage Control IC



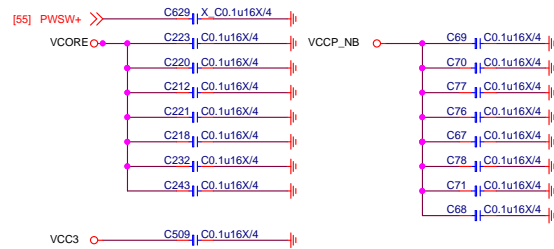
## LED Control by SIO



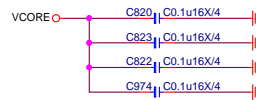
## AM4 APU Detect LED Circuit



## Add for EMI



## return path



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# OPTION BOM PARTS

## 5010 Level

	TOMAHAWK	PC MATE	ARCTIC	Gaming plus
PCB	OPT_PCB_TOM 7A34-01S Black PDO-07A3410-G37	OPT_PCB_PCM 7A34-02S Black PDO-07A3420-G37	OPT_PCB_ARC 7A34-03S White PS0-07A3430-G37	OPT_PCB_GAP 7A34-04S White PDO-07A3440-G37

FCH	X370_NB B01-2180B5-A08 B01-2180B5-A08 B350_NB B01-2180B5-A08 B01-2180B5-A08	X371 B350		
-----	--	--------------	--	--

Schematic Cfg	Project
CFG1-7A34-01S-B350_601-7A34-01S(TOMAHAWK)	V A
CFG1-7A34-03S-B350_601-7A34-03S(PC MATE)	V B
CFG1-7A34-04S-B350_601-7A34-04S(ARCTIC)	V C
CFG1-7A34-05S-B350_601-7A34-05S(Gaming Plus)	V D

	TOMAHAWK (A)	PC MATE (B)	ARCTIC (C)	Gaming plus (D)
SOLID CAP 100u16	OPT_100u16_TOM E601D-Q37 C_P2_5_D6_3_H5 C71-10116X1-N07	OPT_100u16_PCM E601D-Q37 C_P2_5_D6_3_H6 C71-10116Q1-A05	OPT_100u16_ARC E601D-Q37 C_P2_5_D6_3_H5 C71-10116X1-N07	FOOTPRINT C_P2_5_D6_3_H6 C_P2_5_D6_3_H5 極容
SOLID CAP 270u16	OPT_270u16_TOM E601D-Q37 C_P3_5_D8_H8 C71-27117P1-N07	OPT_270u16_PCM E601D-Q37 C_P3_5_D8_H9 C71-27117D1-A05	OPT_270u16_ARC E601D-Q37 C_P3_5_D8_H8 C71-27117P1-N07	FOOTPRINT C_P3_5_D8_H9 C_P3_5_D8_H8 橫包容
SOLID CAP 470u6.3	OPT_470u6.3_TOM E601D-Q37 C_P2_5_D6_3_H9_5 C71-47106M1-N07	OPT_470u6.3_PCM E601D-Q37 C_P2_5_D6_3_H9 C71-47106K1-A05	OPT_470u6.3_ARC E601D-Q37 C_P2_5_D6_3_H9_5 C71-47106M1-N07	FOOTPRINT C_P2_5_D6_3_H9_5 C_P2_5_D6_3_H9 帶
SOLID CAP 560u6.3	OPT_560u6.3_TOM E601D-Q37 C_P2_5_D6_3_H9_5 C71-56106J1-N07	OPT_560u6.3_PCM E601D-Q37 C_P2_5_D6_3_H9 C71-56106F1-A05	OPT_560u6.3_ARC E601D-Q37 C_P2_5_D6_3_H9_5 C71-56106J1-N07	FOOTPRINT C_P2_5_D6_3_H9_5 C_P2_5_D6_3_H9 橫包容
爾 Typ e A	OPT_Type A TOM E601D-Q37 USBM_RED-RH-3 USB_A1_9_USB3_1_1 N53-09M0591-L06	OPT_Type A PCM E601D-Q37 USBM_BLUE-RH-12 USB_A1_9_USB3_1_1 N53-09M0671-L06	OPT_Type A ARC E601D-Q37 USBM_RED-RH-3 USB_A1_9_USB3_1_1 N53-09M0591-L06	

REAL PS2+USB20	OPT_PS2USB_TOM E601D-Q37 MINIDIN_USB2-RH-8 IOASM_USB_DIN14 N58-14M0191-H06	OPT_PS2USB_PCM E601D-Q37 MINIDIN_USB2-RH-1 IOASM_USB_DIN14 N58-14M0081-L06	OPT_PS2USB_ARC E601D-Q37 MINIDIN_USB2-RH-8 IOASM_USB_DIN14 N58-14M0191-H06	
OPT_PS2USB_TOM1 AVL :N58-14M0211-F02/ N58-14M0191-H06/ N58-14M0241-H06 OPT_PS2USB_PCM1 AVL :N58-14M0081-L06/N58-14M0081-F02/ N58-14M0221-H06				

LAN+ U3	OPT_LANU3_TOM E601D-Q37 RJ45_USBX2_LEDX2-1000-RH IOASM_RJ45_USB_LED32 N58-32F0311-F02	OPT_LANU3_PCM E601D-Q37 RJ45_USBX2_LEDX2-TX-RH-93 IOASM_RJ45_USB_LED32 N58-32F0291-F02	OPT_LANU3_ARC E601D-Q37 RJ45_USBX2_LEDX2-1000-RH IOASM_RJ45_USB_LED32 N58-32F0311-F02	
---------	---	--	---	--

## 5020 Level

	TOMAHAWK (A)	PC MATE (B)	ARCTIC (C)	Gaming plus (D)
Bottom LED	OPT_LED_TOM E601D-Q37 LED04[BR]-25mA2.35V_1711-RH D0C-040S600-E07 Red		OPT_LED_ARC E601D-Q37 LED04[PW]-25mA3.2V_1711-HF D0C-040S300-E07 White	OPT_LED_GAP E601D-Q37 LED04[BR]-25mA2.35V_1711-RH D0C-040S600-E07 Red
Audio LED	OPT_AILED_TOM E601D-Q37 LED04[BR]-25mA2.35V_1711-RH D0C-040S600-E07 Red	OPT_AILED_PCM E601D-Q37 LED04[PW]-25mA3.2V_1711-HF D0C-040S300-E07 White	OPT_AILED_ARC E601D-Q37 LED04[PW]-25mA3.2V_1711-HF D0C-040S300-E07 White	OPT_AILED_GAP E601D-Q37 LED04[BR]-25mA2.35V_1711-RH D0C-040S600-E07 Red

DDR Slot	OPT_DDRSLT_TOM E601D-Q37 DDRIV-288P_BLACK-RH-21 DDRIV_D288 N13-2880581-L06 Black	OPT_DDRSLT_PCM E601D-Q37 DDRIV-288P_BLACK-RH-21 DDRIV_D288 N13-2880581-L06 Black	OPT_DDRSLT_ARC E601D-Q37 DDRIV-288P_WHITE-RH-7 DDRIV_D288 N13-2880541-L06 White	OPT_DDRSLT_GAPB E601D-Q37 DDRIV-288P_BLACK-RH-21 DDRIV_D288 N13-2880581-L06 Black
				OPT_DDRSLT_GAPR E601D-Q37 DDRIV-288P_RED-RH-1 DDRIV_D288 N13-2880701-L06 Red

Audio	OPT_AUDIO_TOM E601D-Q37 JACK-AUDIOX6F_B/LB/LB/RED/BL-RH AUDIO_AUD_26P_U2 N54-26F0361-L06 Black\Red	OPT_AUDIO_PCM E601D-Q37 JACK-AUDIOF_B/LB/UR/GR/GY/RED-RH AUDIO_AUD_26P_U2 N54-26F0351-L06 Color	OPT_AUDIO_ARC E601D-Q37 JACK-AUDIOX6F_B/LB/BL/BL/RED/BL-RH AUDIO_AUD_26P_U2 N54-26F0361-L06 Black\Red	FOOTPRINT AUDIO_AUD_26P_U2 JACK_AUD_D26P 橫包容
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PCH SINK	OPT_PCHSINK_TOM E601D-Q37 E31-0408600-A87	OPT_PCHSINK_PCM E601D-Q37 E31-0408870-K08	OPT_PCHSINK_ARC E601D-Q37 E31-0408880-A87	OPT_PCHSINK_GAP E601D-Q37 E31-0408880-A87
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MOS heatsink(short)	OPT_MOS_ST_TOM E601D-Q37 E31-0504280-A87	OPT_MOS_ST_PCM E601D-Q37 E31-0504720-K08	OPT_MOS_ST_ARC E601D-Q37 E31-0504730-A87	OPT_MOS_ST_GAP E601D-Q37 E31-0504730-A87
---------------------	--	--	--	--

MOS heatsink(Long)	OPT_MOS_LO_TOM E601D-Q37 E31-0504270-A87	OPT_MOS_LO_PCM E601D-Q37 E31-0504710-K08	OPT_MOS_LO_ARC E601D-Q37 E31-0504700-A87	OPT_MOS_LO_GAP E601D-Q37 E31-0504700-A87
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PCIEx16	OPT_PCIE16_TOM E601D-Q37 Black N11-1641491-L06	OPT_PCIE16_PCM E601D-Q37 Black N11-1641491-L06	OPT_PCIE16_ARC E601D-Q37 White N11-1641601-L06	OPT_PCIE16_GAP E601D-Q37 Red N11-1641671-L06
---------	---	---	---	---

PCIEx4	OPT_PCIE4_TOM E601D-Q37 Black N11-1000151-L06	OPT_PCIE4_PCM E601D-Q37 Black N11-1000151-L06	OPT_PCIE4_ARC E601D-Q37 Black N11-1000151-L06	OPT_PCIE4_GAP E601D-Q37 Red N11-1000231-L06
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X370 Label	X370_MKTGname G51-M1SPK15-Q13 B350_MKTGname G51-M1SPK14-Q13	X370_MKTGname G51-M1SPK15-Q13 B350_LABEL_PCM G51-M1SPK89-Q13	X370_MKTGname G51-M1SPK15-Q13 B350_LABEL_ARC G51-M1SPL11-Q13	X370_MKTGname G51-M1SPK15-Q13 B350_LABEL_GAP G51-M1SPL41-Q13
------------	--	---	---	---

FCH LED

PCH\_WLED1  
WHITE LED  
X\_PCH\_WLED  
D0C-040S300-E07

DDR\_OOHM  
0 OHM  
X\_DDR\_OOHM  
R11-0000012-W08



MSI

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Title

BOM OPTION

Size

Document Number

MS-7A34

Date

Tuesday, June 20, 2017

Rev

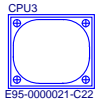
20\_30

Sheet

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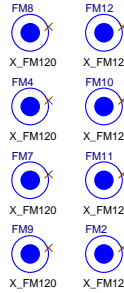
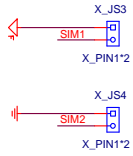


## CPU Socket

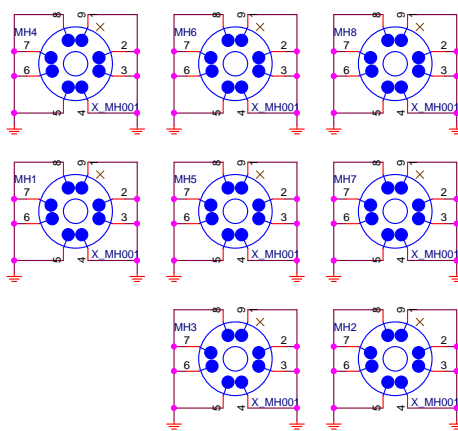


E95-0000021-C22

## Simulation



## Optics Orientation Holes



## MANUAL PART

UEFI1  
G51-M1SPXXA-A09

HDMI\_LA1  
Label  
HDMI  
HDMI LABEL

Y01-RHDMI03-000

BAT1\_X1  
BAT-CR2032-RH  
AVL:  
D06-0100161-P52  
D06-0100101-K26

cFosSoftware [N,I]  
Y02-MU00170-CFO  
Y02-MU00170-CFO  
NAHIMIC [N,I,N]  
Y02-MU00100-NAH  
Y02-MU00100-NAH  
XSPLIT [N,I,N]  
Y02-MA00401-XSP  
Y02-MA00401-XSP  
SSE [N,I]  
Y02-MA00101-SSE  
Y02-MA00101-SSE

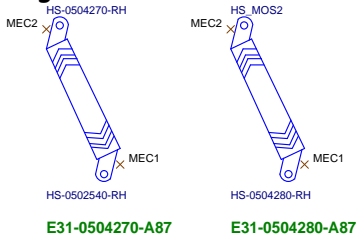
VRREADY\_COVER1  
VR  
READY  
X1  
E21-7976010-RH  
E21-7A63020-A91

Schematic Cfg	Project	
CFG1-7A34-01S-B350_601-7A34-01S(TOMAHAWK)	V	A
CFG1-7A34-03S-B350_601-7A34-03S(PC_MATE)	V	B
CFG1-7A34-04S-B350_601-7A34-04S(ARCTIC)	V	C
CFG1-7A34-05S-B350_601-7A34-05S(Gamging_Plus)	V	D

## MOS SINK

Long

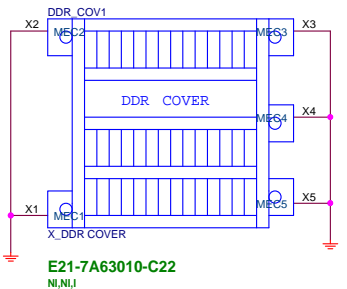
short



E31-0504270-A87

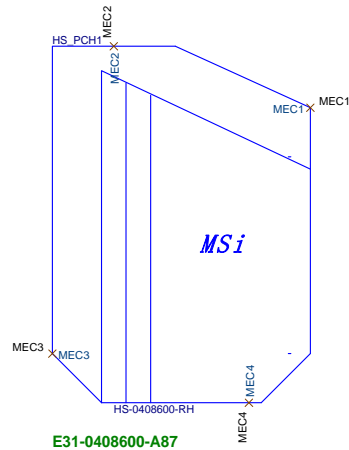
E31-0504280-A87

## DDR Cover



E21-7A63010-C22  
N,I,N,I

## PCH SINK



E31-0408600-A87

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